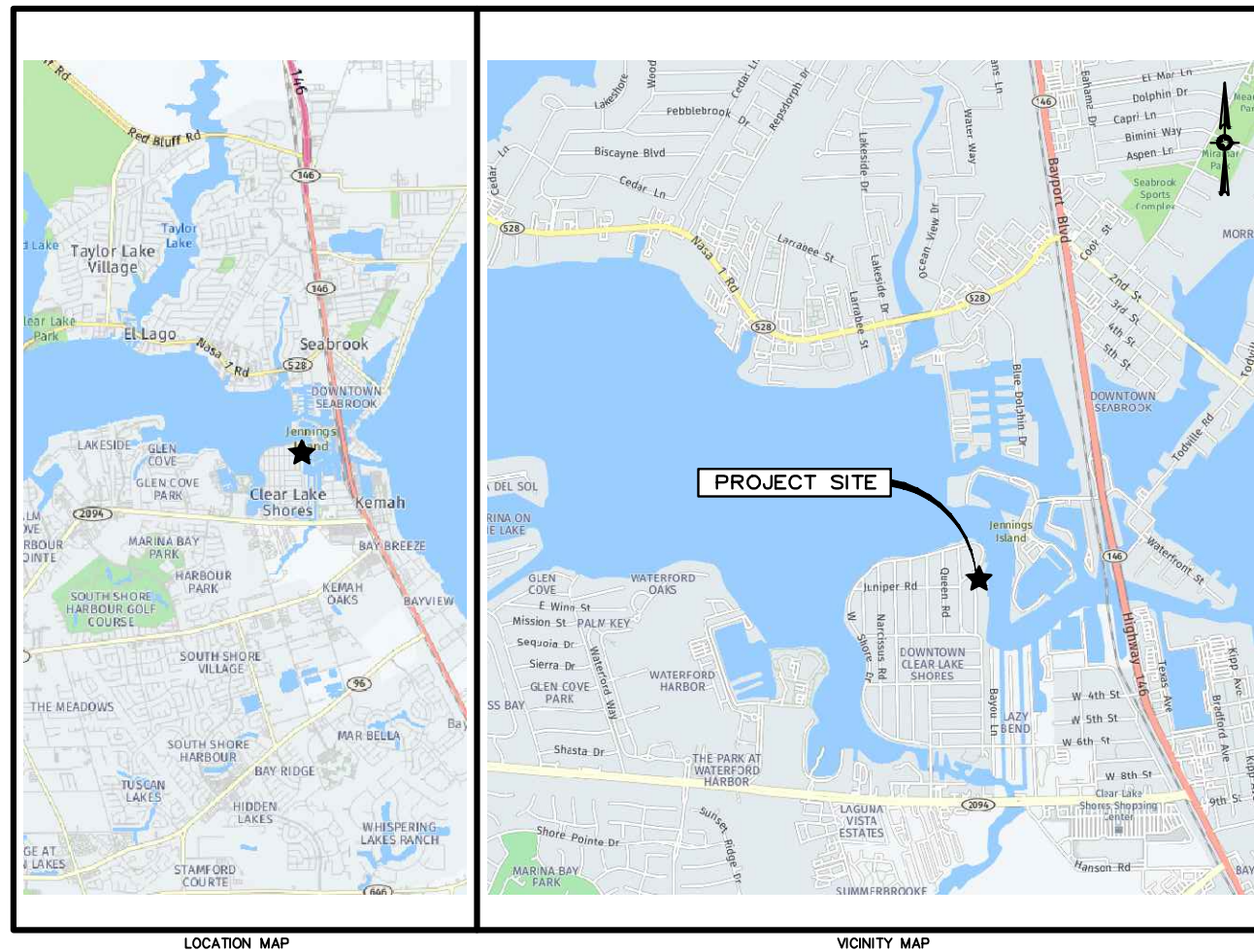


PROPOSED BOAT RAMP IMPROVEMENTS

TPWD BOAT ACCESS GRANT

CLEAR LAKE SHORES, TEXAS



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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 08/16/2021



REVISION		
REV	DATE	DESCRIPTION
A	8/16/2021	50% REVIEW SET

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GENERAL NOTES

1. NOTIFICATIONS

- 1.1. CONTRACTOR SHALL NOTIFY ENGINEER 48 HOURS BEFORE COMMENCEMENT OF WORK AND KEEP ENGINEER UPDATED REGARDING CONSTRUCTION SCHEDULE. ENGINEER WILL NOTIFY DISTRICT REGARDING SCHEDULE AND REMOVAL OF OBSTRUCTION, PERSONAL ITEMS, UNDERWATER LIGHTS, ETC.

2. EXISTING UTILITIES

- 2.1. VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES AND PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.
- 2.2. THE TYPE, SIZE, LOCATION AND OWNERSHIP OF EXISTING UTILITIES HAVE BEEN OBTAINED FROM RECORD DRAWINGS FURNISHED BY THE OWNER. INFORMATION DERIVED FROM THESE SOURCES IS BELIEVED TO BE THE MOST RELIABLE AVAILABLE AND IS PROVIDED FOR THE CONTRACTOR'S INFORMATION ONLY. THE CONTRACTOR SHALL NOTIFY EACH PIPELINE OWNER AND VERIFY ITS ACTUAL FIELD LOCATION PRIOR TO EXCAVATION. NO WARRANTY IS GIVEN AS TO THE ACCURACY OR COMPLETENESS OF UTILITY LOCATION SHOWN ON THESE DRAWINGS.
- 2.3. AT LEAST 30 DAYS PRIOR TO COMMENCING ANY EXCAVATING OR OTHER CONSTRUCTION ACTIVITY IN THE VICINITY OF THE UTILITY, NOTIFY THE TEXAS EXCAVATION SAFETY SYSTEM AT 1-800-DIG-TESS (344-8377).
- 2.4. NO EXCAVATING OR OTHER CONSTRUCTION ACTIVITY SHALL BE CONDUCTED IN THE IMMEDIATE VICINITY OF A PIPELINE IN THE ABSENCE OF A PIPELINE REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK, AND SHALL BE RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.
- 2.5. OVERHEAD LINES MAY EXIST ON THE PROPERTY. THEY HAVE NOT BEEN MARKED SINCE THEY ARE CLEARLY VISIBLE. THE CONTRACTOR SHALL LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE, FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN 6 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. CONTRACTORS AND OWNERS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY.

3. EXISTING CONDITIONS:

- 3.1. SHELMARK ENGINEERING, LLC SHALL NOT BE HELD ACCOUNTABLE FOR THE ACCURACY OF THESE DRAWINGS. REASONABLE EFFORTS WERE MADE TO INCLUDE ACCURATE AND UP TO DATE INFORMATION ON THE EXISTING SITE CONDITIONS, BUT NO FORMAL SURVEY WAS AVAILABLE. CONTRACTOR WILL NEED TO FIELD VERIFY ALL DIMENSIONS AND LOCATION OF EXISTING AND PROPOSED ELEMENTS ON SITE.
- 3.2. SPECIAL CARE SHALL BE TAKEN TO NOT DISTURB EXISTING STRUCTURES, UTILITIES AND EXISTING DRAINAGE PATTERNS.

4. PERMITS:

- 4.1. OWNER TO OBTAIN ALL PERMITS REQUIRED BY CITY, COUNTY, AND STATE AGENCIES PRIOR TO STARTING CONSTRUCTION OF UTILITY AND/OR CULVERTS WITHIN ROAD RIGHT-OF-WAYS.
- 4.2. WORK IS BEING CONDUCTED UNDER NATIONWIDE PERMIT (NWP-3) MAINTENANCE AS AUTHORIZED BY U.S. ARMY CORPS OF ENGINEERING.

5. STRUCTURAL STABILITY DURING CONSTRUCTION

- 5.1. THE STRUCTURAL DRAWINGS REPRESENT THE COMPLETED STRUCTURE WITH ALL ELEMENTS PROPERLY INSTALLED IN THEIR FINAL POSITIONS.
- 5.2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF CONSTRUCTION, INCLUDING THE DESIGN, CONSTRUCTION, SEQUENCING AND MAINTENANCE OF ANY SHORING, BRACING, OR OTHER TEMPORARY SUPPORTS OR ERECTION DEVICES AS MAY BE REQUIRED TO PROPERLY BRACE, SUPPORT AND ERECT ANY ELEMENT DURING CONSTRUCTION.
- 5.3. DO NOT PLACE BACKFILL AGAINST FOUNDATION WALLS OR GRADE BEAMS UNTIL BRACING FLOORS ARE IN PLACE, OR OTHER TEMPORARY BRACING IS INSTALLED.
- 5.4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PAINT ALL SURFACES WHICH REQUIRE PROTECTION FROM THE ELEMENTS WITH THE APPROPRIATE PAINT INCLUDING NECESSARY PRIMER COATS AND BACK PRIMING WHERE NECESSARY.

6. CONTRACTOR'S GENERAL WARRANTY AND GUARANTEE:

- 6.1. CONTRACTOR WARRANTS AND GUARANTEES TO OWNER THAT ALL WORK WILL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND WILL NOT BE DEFECTIVE. ENGINEER AND ITS RELATED ENTITIES SHALL BE ENTITLED TO RELY ON REPRESENTATION OF CONTRACTOR'S WARRANTY AND GUARANTEE.
- 6.2. CONTRACTOR'S WARRANTY AND GUARANTEE HEREUNDER EXCLUDES DEFECTS OR DAMAGE CAUSED BY:
- 6.2.1. ABUSE, MODIFICATION, OR IMPROPER MAINTENANCE OR OPERATION BY PERSONS OTHER THAN CONTRACTOR, SUB-CONTRACTORS, SUPPLIERS, OR ANY OTHER INDIVIDUAL OR ENTITY FOR WHOM CONTRACTOR IS RESPONSIBLE;
- 6.2.2. NORMAL WEAR AND TEAR UNDER NORMAL USAGE.
- 6.3. IF WITHIN ONE YEAR AFTER THE DATE OF FINAL COMPLETION, ANY WORK IS FOUND TO BE DEFECTIVE, CONTRACTOR SHALL PROMPTLY, WITHOUT COST TO OWNER, SATISFACTORILY CORRECT OR REPAIR OR REMOVE AND REPLACE ANY DAMAGE TO SUCH DEFECTIVE WORK.

7. SITE SAFETY

- 7.1. CONTRACTOR SHALL PROVIDE A SECURE AND SAFE AND STABLE JOBSITE DURING CONSTRUCTION AND AT THE END OF WORK DAY.
- 7.2. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS TO HIS SATISFACTION BEFORE PROCEEDING WITH CONSTRUCTION. CONFIRM LOCATION OF ALL UNDERGROUND UTILITIES, CONDUIT, CABLE, PIPELINES, GAS LINES, TELEPHONE AND POWERLINES.
- 7.3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE SAFETY AND CONFORMANCE TO ALL SAFETY REGULATIONS PRESCRIBED BY FEDERAL, STATE AND LOCAL AUTHORITIES, INCLUDING ADHERENCE TO ALL OSHA REQUIREMENTS IN EFFECT AT THE TIME OF CONSTRUCTION.
- 7.4. THE DESIGN, CONSTRUCTION AND MAINTENANCE OF ALL ERECTION OR TEMPORARY SAFETY DEVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 7.5. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING, AND SHORING.

8. SITE SAFETY DURING TROPICAL EVENTS:


- 8.1. HURRICANE CONDITIONS OF READINESS: THE TEXAS COAST IS SUBJECT TO HURRICANE STORMS AT VARIOUS TIMES DURING THE YEAR. THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS FOR HURRICANE READINESS UNLESS SPECIFICALLY DIRECTED OTHERWISE.
- 8.2. CONDITION FOUR: (SUSTAINED WIND OF 50 KNOTS OR GREATER EXPECTED WITHIN 72 HOURS)
- 8.2.1. NORMAL DAILY JOB SITE CLEANUP AND GOOD HOUSEKEEPING PRACTICES. COLLECT AND STORE IN PILES OR CONTAINERS ALL SCRAP LUMBER, WASTE MATERIAL, AND RUBBISH FOR REMOVAL AND DISPOSAL AT THE CLOSE OF EACH WORKDAY.
- 8.2.2. MAINTAIN THE CONSTRUCTION SITE AT THE CLOSE OF EACH WORKDAY. MAINTAIN THE CONSTRUCTION SITE INCLUDING STORAGE AREA, FREE OF ACCUMULATION OF DEBRIS.
- 8.2.3. STACK FORM LUMBER IN NEAT PILES LESS THAN 4 FEET HIGH. REMOVE ALL DEBRIS, TRASH, OR OBJECTS THAT COULD BECOME MISSILE HAZARDS.
- 8.2.4. CONTACT ENGINEER FOR CONDITION OF READINESS UPDATES AND COMPLETION OF REQUIRED ACTION.
- 8.3. CONDITION 3: (SUSTAINED WINDS OF 50 KNOTS OR GREATER EXPECTED WITHIN 48 HOURS)
- 8.3.1. MAINTAIN "CONDITION FOUR" REQUIREMENTS AND COMMENCE SECURING OPERATIONS AS NECESSARY FOR "CONDITION ONE" WHICH CANNOT BE COMPLETED WITHIN 18 HOURS.
- 8.3.2. CEASE ALL ROUTINE ACTIVITIES THAT MIGHT INTERFERE WITH SECURING OPERATIONS. COMMENCE SECURING AND STOW ALL GEAR AND PORTABLE EQUIPMENT.
- 8.3.3. MAKE PREPARATIONS FOR SECURING BUILDINGS.
- 8.3.4. REVIEW REQUIREMENT PERTAINING TO "CONDITION TWO" AND CONTINUE ACTION AS NECESSARY TO ATTAIN "CONDITION THREE" READINESS. CONTACT THE SHELMARK ENGINEERING FOR WEATHER AND CONDITION OF READINESS UPDATES AND COMPLETION OF REQUIRED ACTIONS.
- 8.4. CONDITION 2: (SUSTAINED WINDS OF 50 KNOTS OR GREATER EXPECTED WITHIN 24 HOURS)
- 8.4.1. CURTAIL OR CEASE ROUTINE ACTIVITIES UNTIL SECURING OPERATIONS IS COMPLETE. REINFORCE OR REMOVE FORMWORK AND SCAFFOLDING. SECURE MACHINERY, TOOLS, EQUIPMENT, MATERIALS, OR REMOVE FROM THE JOB SITE.
- 8.4.2. EXPEND EVERY EFFORT TO CLEAR ALL MISSILE HAZARDS AND LOOSE EQUIPMENT FROM PROJECT SITE.
- 8.4.3. SECURE THE JOB SITE AND LEAVE PREMISES.
- 8.5. CONDITION 1: (SUSTAINED WINDS OF 50 KNOTS OR GREATER EXPECTED WITHIN 12 HOURS). SAME AS REQUIREMENTS PERTAINING TO "CONDITION TWO".
- 8.6. DUE TO THE POTENTIAL DAMAGES THAT WOULD RESULT FROM A HURRICANE OR STORM EQUIPMENT. SUCH EQUIPMENT SHALL BE REMOVED FROM THE SITE WITHIN 24 HOURS OF THE SETTING OF STORM CONDITION THREE.

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

DWG SIZE: 17"x11"

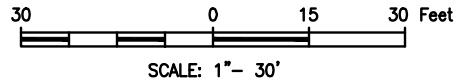
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PROJECT:			
PROPOSED BOAT RAMP IMPROVEMENTS			
TPWD BOAT ACCESS GRANT			
CLEAR LAKE SHORES, TX			
		DATE: 07/14/2021	
		SCALE: NTS	
		SHEET NO: C0.01	
		JOB NO: 20-244	REV: A

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SITE PLAN
SCALE: 1" = 30'

DWG SIZE: 17"x11"




GENERAL SITE NOTES:

1. **SITE SAFETY:** THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE AND OSHA SAFETY STANDARDS OR REGULATIONS.
2. **EXISTING UTILITIES:** VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES AND PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION. AT LEAST 30 DAYS PRIOR TO COMMENCING ANY EXCAVATING OR OTHER CONSTRUCTION ACTIVITY IN THE VICINITY OF THE UTILITY, NOTIFY THE TEXAS EXCAVATION SAFETY SYSTEM 1-800-DIG-TESS (344-8377).
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4. **SPECIAL CARE** SHALL BE TAKEN TO NOT DISTURB EXISTING BULKHEAD AND UTILITIES.
5. **PERMITS:** CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY CITY, COUNTY, AND STATE AGENCIES PRIOR TO STARTING CONSTRUCTION.
6. **REFERENCE LINES AND GRADES:** DECKING SURFACE ELEVATION SHALL MATCH EXISTING FLAGSTONE WALK ELEVATION.
7. **NO SURCHARGE** SHALL BE APPLIED TO THE BACKSIDE OF THE BULKHEAD DURING CONSTRUCTION.
8. **SOD/SEEDING REQUIREMENTS:** ALL DISTURBED AREAS SHALL BE COMPLETELY SODDED WITH SOD THAT MATCHES EXISTING.

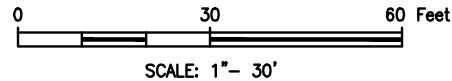
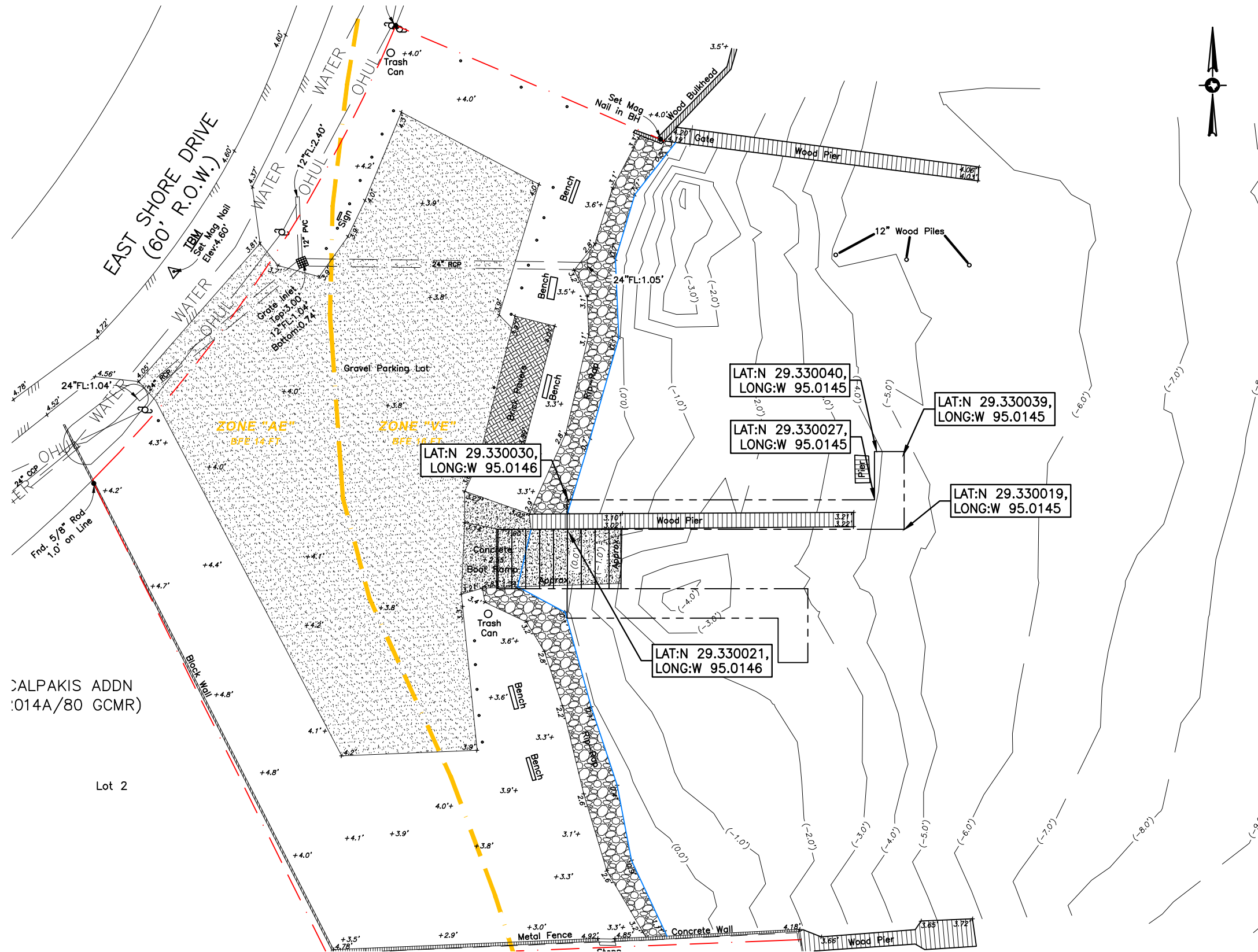
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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

SHEET:		SITE PLAN	
PROJECT:		PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115		DATE:	07/14/2021
		SCALE:	1' = 30'
		SHEET NO:	C1.01
		JOB NO:	20-244
		REV:	A

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GENERAL NOTES:

1. **REFERENCE LINES AND GRADES.** THE OWNER SHALL PROVIDE REFERENCES FOR LINE AND GRADE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE REFERENCE POINTS AND REPLACE THEM IF LOST OR DAMAGED.
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5. SPECIAL CARE SHALL BE TAKEN TO NOT DAMAGE ANY WETLAND VEGETATION OR DISTURB DRAINAGE PATTERNS.
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7. **SAFETY:** OBSERVE ALL FEDERAL, STATE, AND LOCAL SAFETY REGULATIONS WHEN WORKING IN OR NEAR PUBLIC ROAD R.O.W.S.
8. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING, AND SHORING.
9. **FLOOD STATEMENT:** THE SUBJECT PROPERTY APPEARS TO BE PRIMARILY LOCATED WITHIN THE 100-YEAR FLOODPLAIN (ZONE VE 15) AS PER FIRM MAP COMMUNITY PANEL NUMBER 485469 0013 E (MAP REVISION DATE: DECEMBER 6, 2002).
10. IMAGERY PROVIDED BY NEARMAP ON JUNE 6, 2019.

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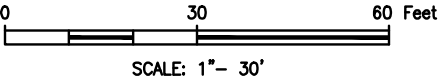
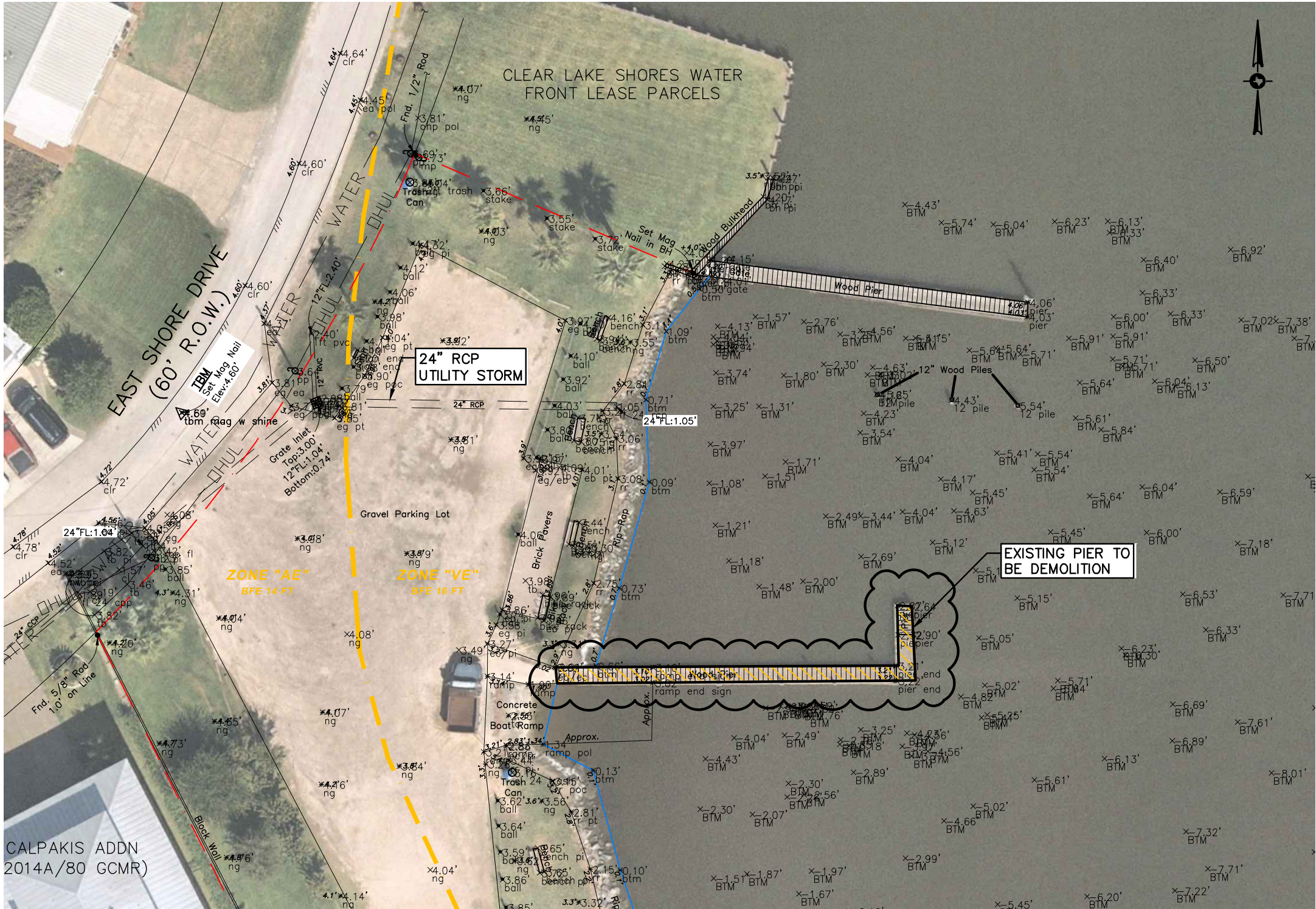
ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

SHEET: DIMENSIONAL SITE PLAN	
PROJECT: PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115	DATE: 07/14/2021
	SCALE: 1" = 30'
	SHEET NO: C1.02
	JOB NO: 20-244 REV: A

DWG SIZE: 17"x11"

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DEMOLITION LEGEND




NOTE:

ALL DEBRIS TO BE REMOVED FROM SITE BY CONTRACTOR

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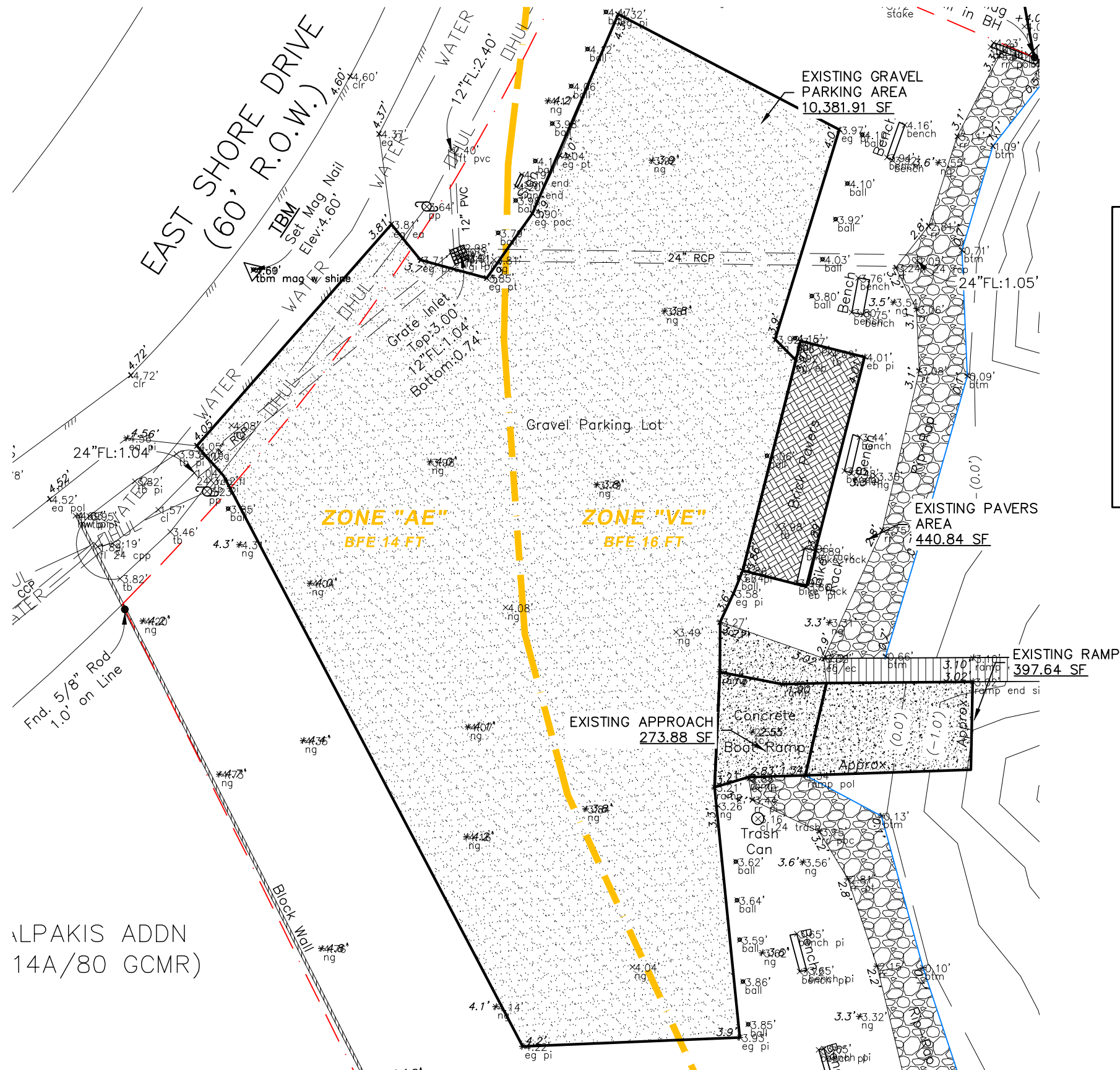
ENGINEER:
MARCUS J. MICHNA P.E.
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SHEET:		DEMOLITION PLAN	
PROJECT:		PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 SHELMARK ENGINEERING, L.L.C. CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115		DATE:	07/14/2021
		SCALE:	1" = 30'
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		JOB NO:	20-244
		REV:	A

DWG SIZE: 17"X11"

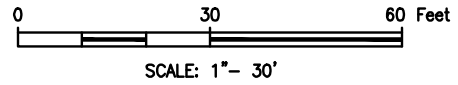
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ALPAKIS ADDN
14A/80 GCMR)



GRADING & PAVING LEGEND	
	30"x4"-INCH TRAFFIC RATED FRAME & SOLID COVER
	30"x4"-INCH TRAFFIC RATED FRAME & GRATE INLET
	TYPE "A" CATCH BASIN
	PAVEMENT SLOPE
	PROP RAMP
	PROP SIDEWALKS
	6-INCH THICK CONCRETE PAVING
	7-INCH THICK CONCRETE PAVING
	FINISHED FLOOR
	FINISHED GRADE
	TOP OF PAVEMENT
	TOP OF CURB
	TOP OF GRATE
	GUTTER



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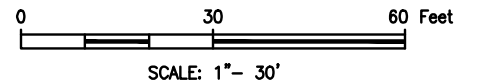
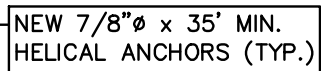
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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

SHEET:		DRAINAGE PLAN	
PROJECT:		PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115		DATE:	07/14/2021
		SCALE:	1" = 30'
		SHEET NO:	C1.05
		JOB NO:	20-244
		REV:	A

DWG SIZE: 17"x11"



1. REFERENCE LINES AND GRADES. THE OWNER SHALL PROVIDE REFERENCES FOR LINE AND GRADE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE REFERENCE POINTS AND REPLACE THEM IF LOST OR DAMAGED.
2. EXISTING UTILITIES. VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES AND PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.
3. PIPELINES. NO EXCAVATING OR OTHER CONSTRUCTION ACTIVITY SHALL BE CONDUCTED IN THE IMMEDIATE VICINITY OF A PIPELINE IN THE ABSENCE OF A PIPELINE REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK, AND SHALL BE RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.
4. OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LINES HAVE NOT BEEN MARKED SINCE THEY ARE CLEARLY VISIBLE. THE CONTRACTOR SHALL LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE, FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN 6 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. CONTRACTORS AND OWNERS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL & CIVIL LIABILITY.
5. SPECIAL CARE SHALL BE TAKEN TO NOT DAMAGE ANY WETLAND VEGETATION OR DISTURB DRAINAGE PATTERNS.
6. PERMITS. OWNER TO OBTAIN ALL PERMITS REQUIRED BY CITY, COUNTY, AND STATE AGENCIES PRIOR TO STARTING CONSTRUCTION. REQUIRED PERMITS THAT CAN ONLY BE ISSUED TO CONTRACTOR SHALL BE OBTAINED AT HIS EXPENSE.
7. SAFETY: OBSERVE ALL FEDERAL, STATE, AND LOCAL SAFETY REGULATIONS WHEN WORKING IN OR NEAR PUBLIC ROAD R.O.W.S.
8. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING, AND SHORING.
9. FLOOD STATEMENT: THE SUBJECT PROPERTY APPEARS TO BE PRIMARILY LOCATED WITHIN THE 100-YEAR FLOODPLAIN (ZONE VE 15) AS PER FIRM MAP COMMUNITY PANEL NUMBER 485469 0013 E (MAP REVISION DATE: DECEMBER 6, 2002).
10. IMAGERY PROVIDED BY NEARMAP ON JUNE 6, 2019.

DATE: 07/14/2021

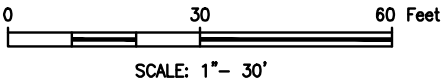
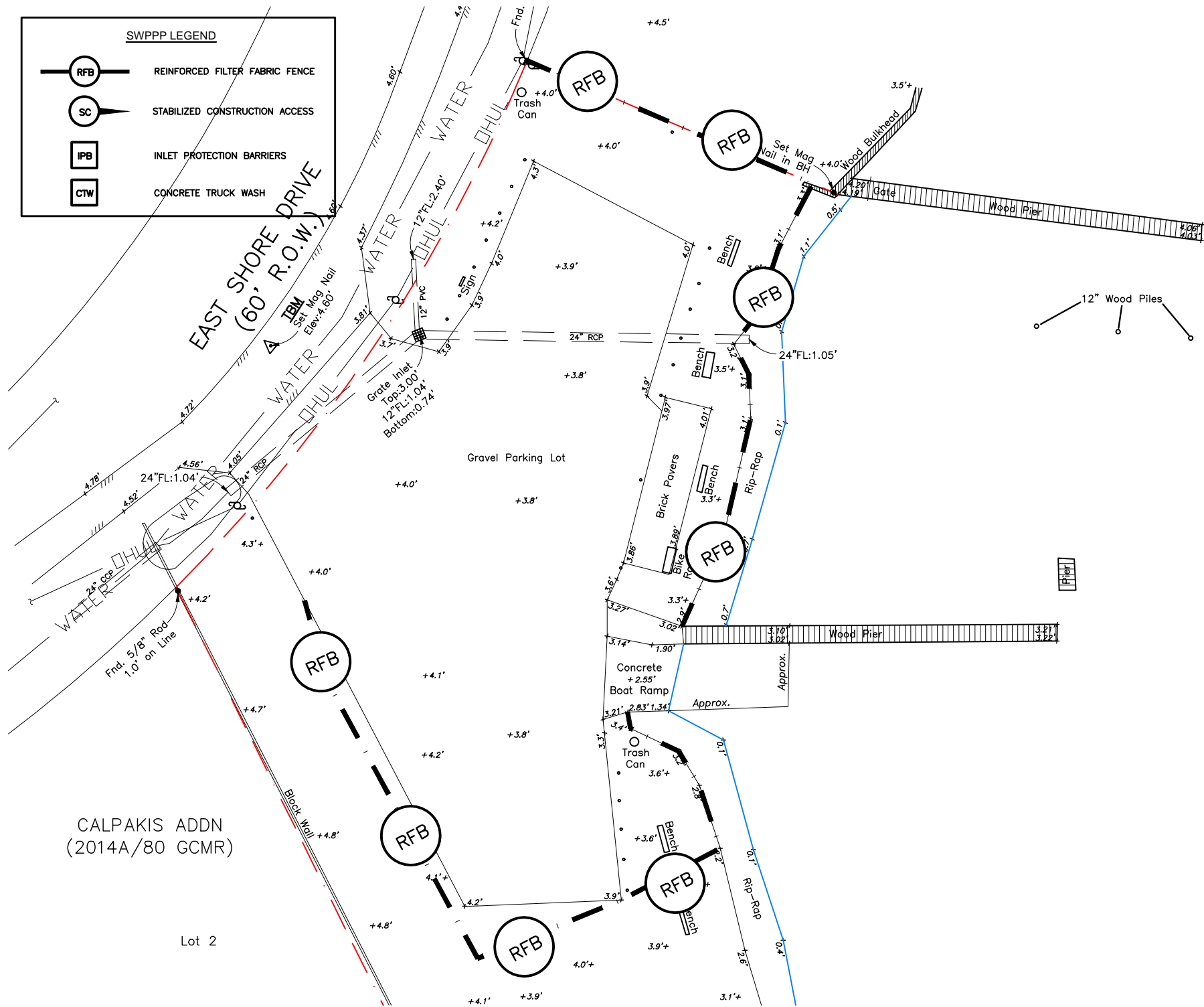
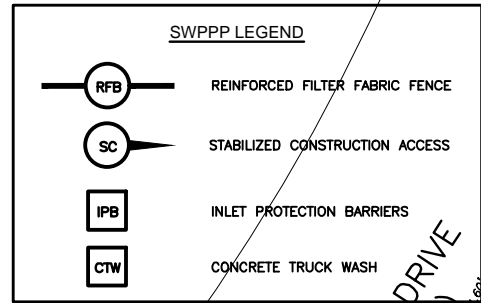
PROJECT: **PROPOSED BOAT RAMP IMPROVEMENTS**
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX



DATE:		07/14/2021	
SCALE:		1" = 30'	
SHEET NO:			
C1.04			
JOB NO:		REV:	
20-244		A	

DWG SIZE: 17"X11"

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GENERAL NOTES:

- REFERENCE LINES AND GRADES.** THE OWNER SHALL PROVIDE REFERENCES FOR LINE AND GRADE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE REFERENCE POINTS AND REPLACE THEM IF LOST OR DAMAGED.
- EXISTING UTILITIES.** VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES AND PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.
- PIPELINES.** NO EXCAVATING OR OTHER CONSTRUCTION ACTIVITY SHALL BE CONDUCTED IN THE IMMEDIATE VICINITY OF A PIPELINE IN THE ABSENCE OF A PIPELINE REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK, AND SHALL BE RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.
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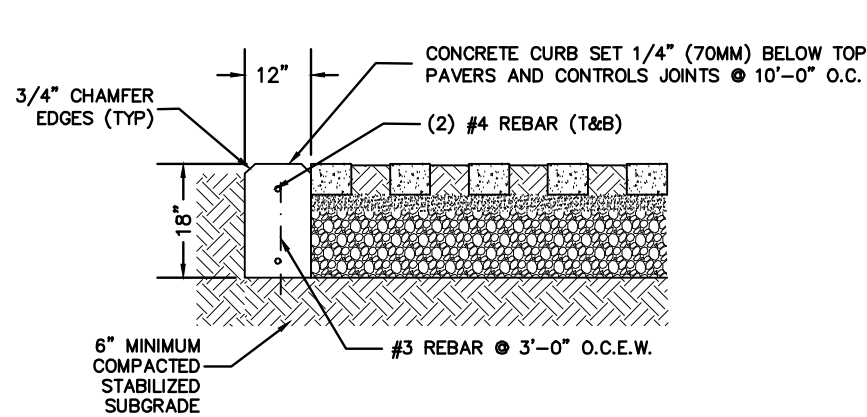
ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

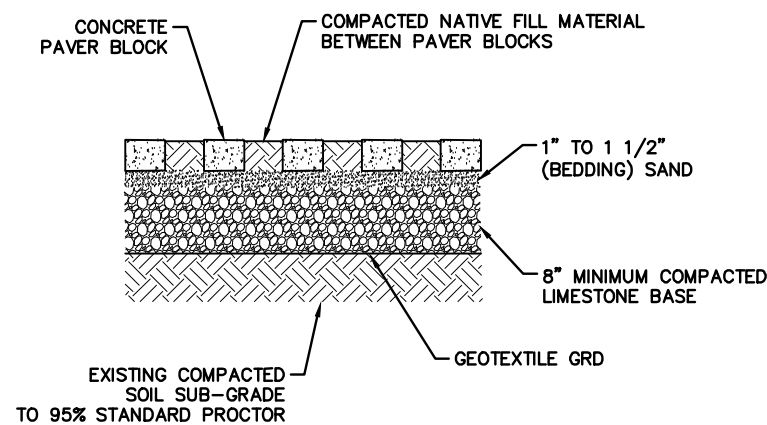
SHEET: SWPPP PLAN	
PROJECT: PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
	DATE: 07/14/2021
	SCALE: 1" = 30'
	SHEET NO: C1.06
	JOB NO: 20-244 REV: A

DWG SIZE: 17"x11"

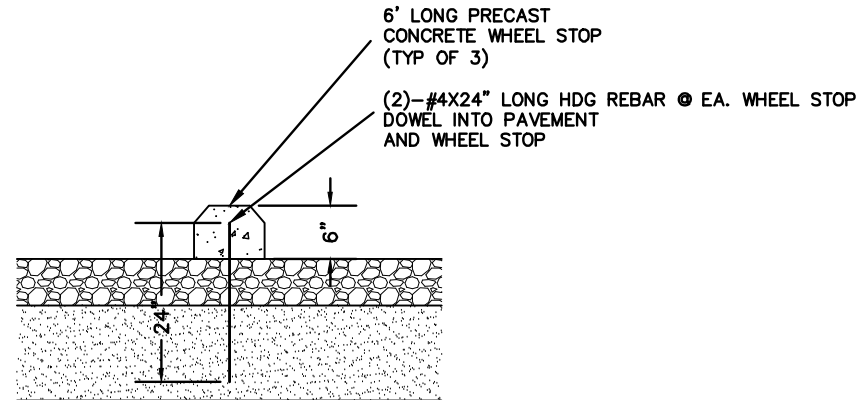
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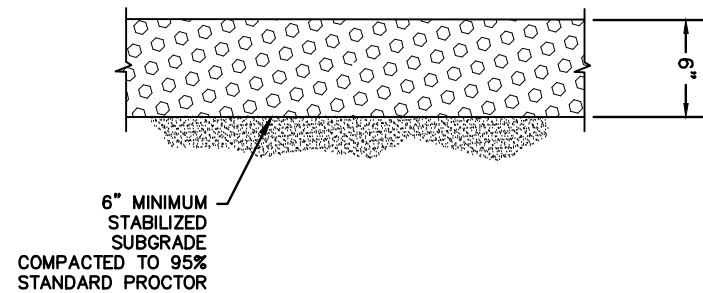
5 **EDGE RESTRAINT PAVER BLOCK SECTION**



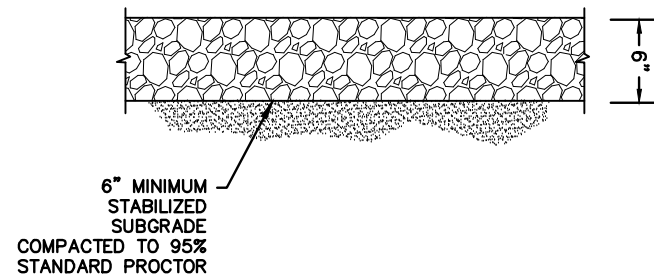
4 **CONCRETE PAVER BLOCK DETAIL**



3 **CONCRETE WHEEL STOP**



2 **STABILIZED CRUSHED CONCRETE BASE**

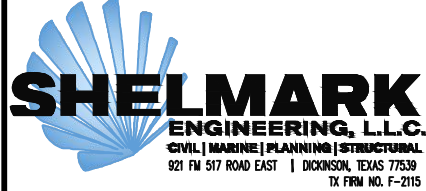


1 **STABILIZED LIME STONE BASE**

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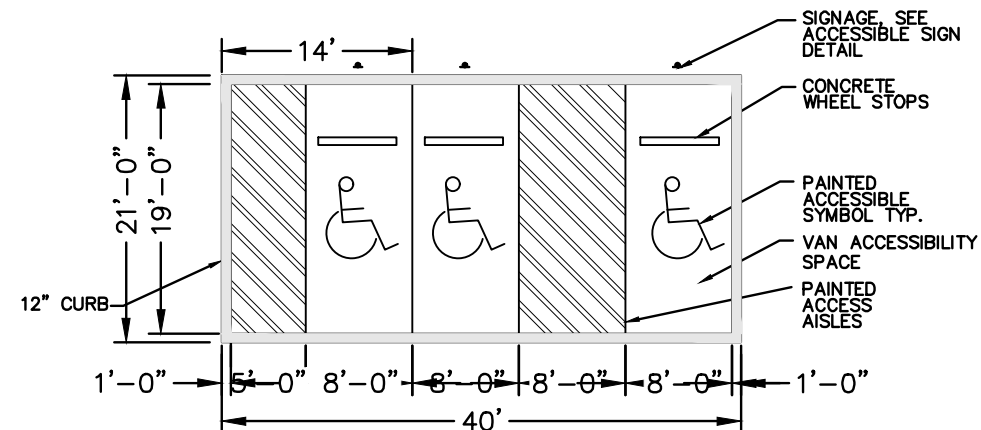
ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

SHEET: PAVING DETAILS	
PROJECT: PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 SHELMARK ENGINEERING, L.L.C. CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115	DATE: 07/14/2021
	SCALE: AS NOTED
	SHEET NO: C2.01
	JOB NO: 20-244 REV: A

DWG SIZE: 17"X11"

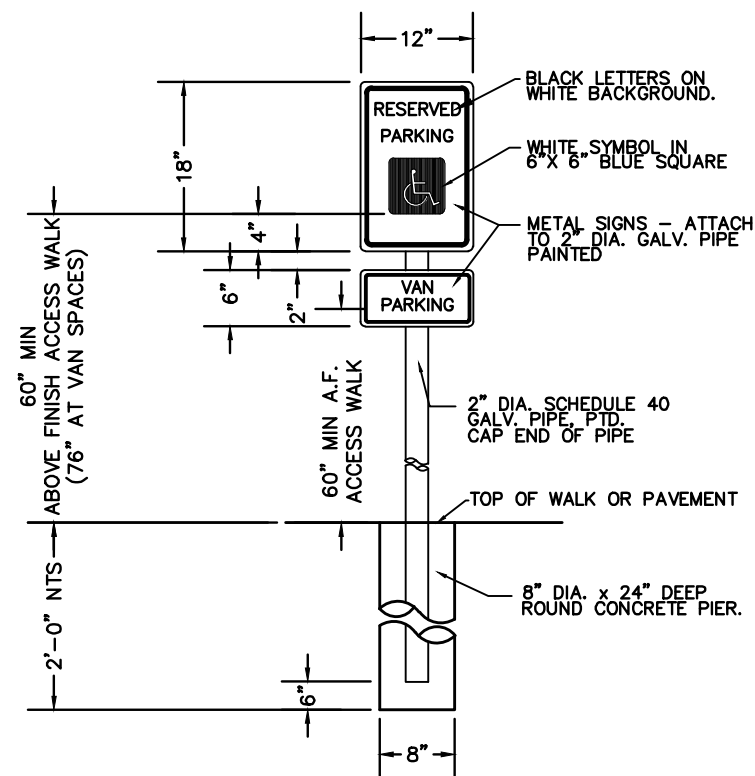
NOTE:
ACCESSIBLE PARKING SPACES AND ACCESS AISLES
SHALL BE LEVEL WITH SURFACE SLOPES NOT
EXCEEDING 1:50 (2%) IN ALL DIRECTIONS.



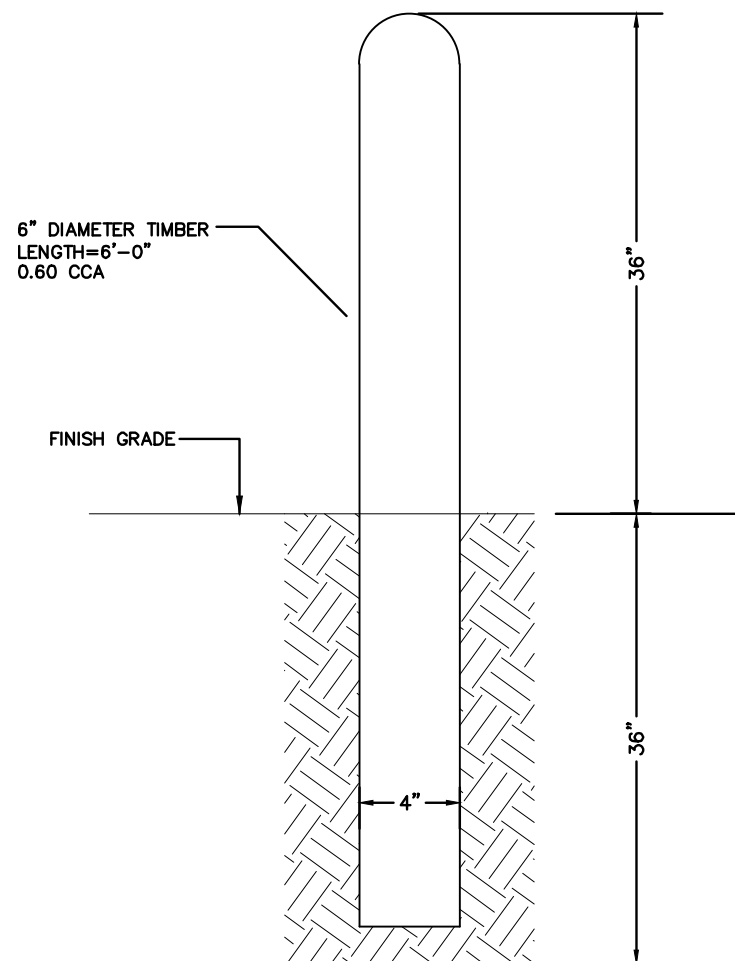
2 ACCESSIBLE PARKING LAYOUT

ACCESSIBLE PARKING SPACE SIGNS SHALL BE DESIGNATED AS RESERVED BY A VERTICALLY MOUNTED OR SUSPENDED SIGN SHOWING THE SYMBOL OF ACCESSIBILITY.

- VAN ACCESSIBLE SPACES SHALL HAVE AN ADDITIONAL SIGN MOUNTED BELOW THE SYMBOL OF ACCESSIBILITY.
- CHARACTERS AND SYMBOLS ON SUCH SIGNS SHALL BE LOCATED 60" MINIMUM ABOVE THE GROUND, FLOOR, OR PAVING SURFACE SO THEY CANNOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE.



3 ACCESSIBLE PARKING SIGN (TYP.)



1 BOLLARD (TYP.)

DWG SIZE: 17"X11"

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

SHEET: MISC DETAILS

PROJECT: **PROPOSED BOAT RAMP IMPROVEMENTS**
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX



DATE: 07/14/2021

SCALE: NTS

SHEET NO:

C2.02

JOB NO:

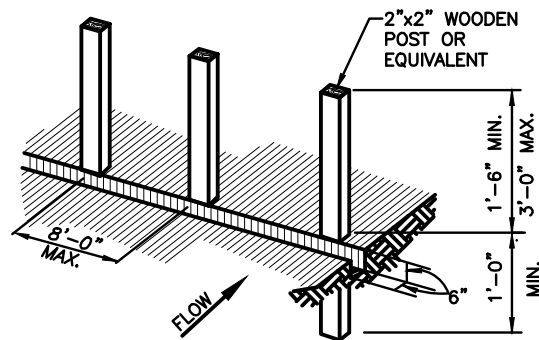
V:

20-244

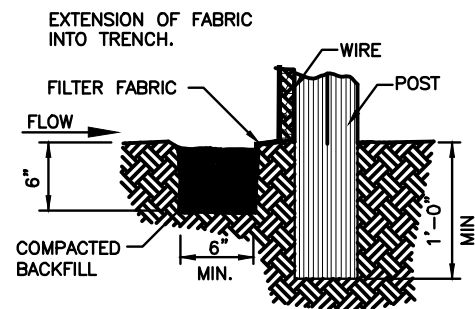
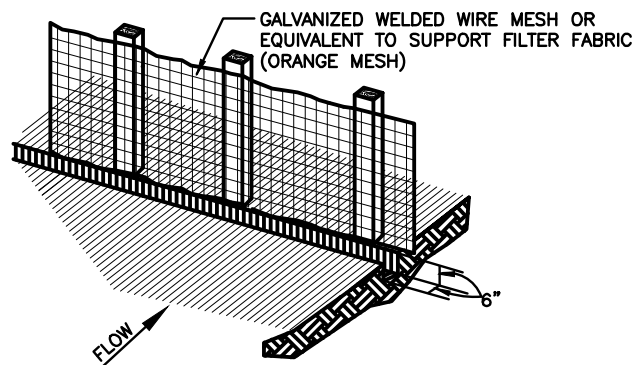
A

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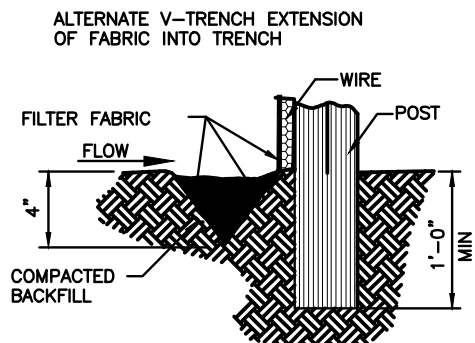
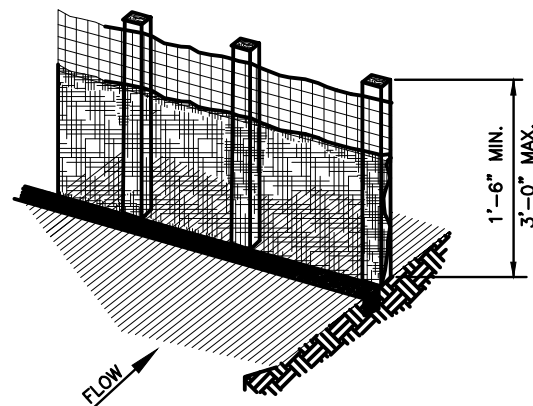
1. SET POSTS AT REQUIRED SPACING AND DEPTH. EXCAVATE 6" x 6" TRENCH UPSLOPE ALONG THE LINE OF POSTS.



2. SECURE MESH FENCING TO POSTS



3. ATTACH FILTER MATERIAL TO WIRE FENCE AND EXTEND IT INTO THE TRENCH. BACKFILL AND COMPACT THE EXCAVATED SOIL.



GENERAL NOTES:

1. SECURELY FASTEN MESH FENCING TO POSTS WITH STAPLES OR TIE WIRES.
2. SECURELY FASTEN FILTER FABRIC TO MESH FENCING.
3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO A POST.
4. REMOVE SEDIMENT DEPOSITS WHEN SILT REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE IN DEPTH.


1

REINFORCED FILTER FABRIC BARRIER

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DATE: 07/14/2021

SHEET: #####	
PROJECT: PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 SHELMARK ENGINEERING, L.L.C. CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115	DATE: 07/14/2021
	SCALE: AS NOTED
	SHEET NO: #####
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DESIGN DATA GOVERNING BUILDING CODE:

REFERENCE: INTERNATIONAL BUILDING CODE (IBC) 2018

DESIGN WIND LOADS

DESIGN CODE REFERENCE DOCUMENT ASCE 7-10
WIND SPEED – ULTIMATE (3 SEC GUST) 120 MPH
EXPOSURE CATEGORY C
RISK CATEGORY II
IMPORTANCE FACTOR (Iw) 1.0

DESIGN FLOOD LOADS

DESIGN CODE REFERENCE DOCUMENT ASCE 7-10
BASE FLOOD ELEVATION (NAVD88) 17.0'
DESIGN FLOOD ELEVATION (NAVD88) 17.0'

DESIGN LIVE LOADS

DESIGN CODE REFERENCE DOCUMENT ASCE 7-10

GUARDRAIL AND HANDRAIL 200 PSF
STAIRS (A) 40 PSF

NOTE: (A). INDIVIDUAL STAIR TREADS SHALL BE DESIGNED FOR THE UNIFORMLY DISTRIBUTED LIVE LOAD OR A 300-POUND CONCENTRATED LOAD ACTING OVER AREA OF A FOUR (4) SQUARE INCHES, WHICHEVER PRODUCES THE GREATER STRESSES.

DESIGN LIVE LOADS (UFC 4-150-07)

MAIN PIERS (UNRESTRICTED ACCESS) 100 PSF
PIERS (RESTRICTED ACCESS) 40 PSF

SEISMIC ZONE

DESIGN CODE REFERENCE DOCUMENT ASCE 7-10
RISK CATEGORY II
SEISMIC IMPORTANCE FACTOR, Ie 1.00
SITE CLASS D – STIFF SOIL
SEISMIC DESIGN CATEGORY B
DESIGN BASE SHEAR (12.8.1) 0.425
SEISMIC RESPONSE COEFFICIENT, Cs 0.017
RESPONSE MODIFICATION COEFFICIENT, R 7.0 (SYSTEM B.22)
ANALYSIS PROCEDURE USED EQUIVALENT LATERAL FORCE

TYPE	VALUE	DESCRIPTION
SS	0.071	MCER GROUND MOTION. (FOR 0.2 SECOND PERIOD)
S1	0.038	MCER GROUND MOTION. (FOR 1.0S PERIOD)
SDS	0.119	NUMERIC SEISMIC DESIGN VALUE AT 0.2 SECOND SA
SD1	0.089	NUMERIC SEISMIC DESIGN VALUE AT 1.0 SECOND SA
SMS	0.078	SITE-MODIFIED SPECTRAL ACCELERATION VALUE
SM1	0.134	SITE-MODIFIED SPECTRAL ACCELERATION VALUE

GEOTECHNICAL INFORMATION

GEOTECHNICAL REPORT NUMBER AND DATE:

ALLOWABLE SOIL BEARING VALUES:

SHALLOW FOUNDATION SYSTEM:

1.5' BELOW EXISTING GRADE 900 PSF
2.0' BELOW EXISTING GRADE 1,000 PSF

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DATE: 07/14/2021

SHEET:

GENERAL NOTES

PROJECT:

PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX



ENGINEERING, L.L.C.

CIVIL | MARINE | PLANNING | STRUCTURAL

921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539

TX FIRM NO. F-2115

DATE: 07/14/2021

SCALE: NTS

SHEET NO: S0.01

JOB NO: 20-244

REV: A

DWG SIZE: 17”X11”

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MATERIALS

1. CONCRETE:

- 1.1. ALL CONCRETE SHALL BE NORMAL WEIGHT (NW) AGGREGATE UNLESS NOTED ON THE PLANS OR SCHEDULES.
- 1.2. CEMENT FOR ALL CONCRETE IN CONTACT WITH SOILS USE TYPE: I/II
- 1.3. CONCRETE CLASSIFICATION AND STRENGTH:

USE	28 DAY STRENGTH	WEIGHT CLASS	SLUMP ± 1"	MAX AGGR SIZE	AIR
	PSI		INCHES	INCHES	%
BULKHEAD PANELS	5,000	NW	4	1	0-2
FOOTINGS/PIER CAPS	3,000	NW	4	1	0-2
WALLS AND COLUMNS	3,000	NW	4	1	0-2
FLATWORK	3,000	NW	4	1	0-2
AL OTHER	3,000	NW	5	1	0-2

NOTES: NW = NORMAL WEIGHT

1.4. MAXIMUM ALLOWABLE WATER-CEMENT RATIOS:

CONCRETE FOR LIQUID-CONTAINING STRUCTURES:

0.45

CONCRETE SUBJECTED TO BRACKISH WATER, SALT SPRAY, DEICERS:

0.40

ALL OTHER CONCRETE:

0.55

2. SIDEWALKS/BULKHEAD CAP JOINTS:

- 2.1. CONTRACTION JOINT: A JOINT SIMILAR TO A CONSTRUCTION JOINT, BUT INTENDED TO ACCOMMODATE CONCRETE SHRINKAGE AND SIMILAR MOVEMENT. A BOND BREAKER IS ALWAYS USED. REINFORCING STEEL IS HELD BACK 4-1/2 INCHES FROM THE JOINT SURFACE, AND SLEEVED DOWELS ARE USED SO POURS CAN MOVE APART, UNLESS OTHERWISE INDICATED.
- 2.2. EXPANSION JOINT: A JOINT SIMILAR TO A CONSTRUCTION OR CONTRACTION JOINT, BUT INTENDED TO ACCOMMODATE BOTH EXPANSION AND CONTRACTION. COMPRESSIBLE JOINT FILLER IS PLACED AGAINST THE HARDENED CONCRETE, TO FORM AND SEPARATE THE SECOND POUR SO POURS CAN MOVE TOGETHER OR APART. A CENTER BULB WATERSTOP AND JOINT SEALANT ARE USED TO FILL THE GAP, UNLESS OTHERWISE INDICATED. REINFORCING STEEL IS HELD BACK, AND SLEEVED DOWELS ARE USED TO ALLOW AND CONTROL MOVEMENT, UNLESS OTHERWISE INDICATED.
- 2.3. CONTROL JOINT: A GROOVE CUT OR FORMED IN THE FACE OF A SINGLE POUR, PRODUCING A WEAKER PLANE MORE LIKELY TO CRACK; USED IN AN ATTEMPT TO CONTROL LOCATIONS OF NORMAL SHRINKAGE CRACKS. JOINT SEALANT IS USED TO FILL THE GROOVE. REINFORCING STEEL IS CONTINUOUS, SINCE THE POUR IS MONOLITHIC.

3. MISC CONCRETE MATERIALS

- 3.1. PREFORMED JOINT FILLER: ASTM D1752 TYPE I NON-EXTRUDING TYPE; NEOPRENE SPONGE OR POLYURETHANE OF FIRM TEXTURE, EXCEPT AS OTHERWISE SPECIFIED. BITUMINOUS FIBER TYPE WILL NOT BE PERMITTED.
- 3.2. CONTROL JOINT FORMER: CONTINUOUS PLASTIC INSERT STRIPS WITH ANCHORAGE RIBS LOCATED AT THE BOTTOM AND AN ENLARGED UPPER PORTION THAT IS READILY REMOVABLE WITHOUT DAMAGE TO THE CONCRETE, AND IS SIZED TO FORM SEALANT GROOVE. SIZE TO EXTEND TO AT LEAST 1/4 SLAB DEPTH.
- 3.3. BACKING ROD: EXTRUDED CLOSED-CELL POLYETHYLENE FOAM ROD, COMPATIBLE WITH JOINT SEALANT MATERIALS USED, WITH A TENSILE STRENGTH NOT LESS THAN 40 PSI, AND COMPRESSION DEFLECTION APPROXIMATELY 25 PERCENT AT 8 PSI. SIZE: 1/8-INCH LARGER IN DIAMETER THAN JOINT WIDTH, EXCEPT USE ONE-INCH DIAMETER ROD FOR 3/4-INCH WIDE JOINTS.
- 3.4. BOND BREAKER: "SUPER BOND BREAKER" MANUFACTURED BY BURKE COMPANY, SAN MATEO, CALIFORNIA; "SELECT CURE CRB", MANUFACTURED BY SELECT PRODUCTS CO., UPLAND, CALIFORNIA, OR EQUAL ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. BOND BREAKER SHALL CONTAIN A FUGITIVE DYE SO AREAS OF APPLICATION WILL BE READILY DISTINGUISHABLE.
- 3.5. SLIP DOWELS: SMOOTH EPOXY-COATED BARS CONFORMING TO ASTM A775.
- 3.6. PVC TUBING: ASTM D2241, SCHEDULE SDR 13.5.

4. CONCRETE REINFORCEMENT

- 4.1. DETAIL BARS IN ACCORDANCE WITH "ACI DETAILING MANUAL", PUBLICATION SP-66, AND "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, "ACI 318, LATEST EDITIONS, PROVIDE DETAILS INDICATING REINFORCING CONTINUITY AT CONSTRUCTION JOINTS.
- 4.2. REINFORCEMENT PROTECTION

LOCATION	MIN DISTANCE CLEAR
CONCRETE PLACED AGAINST EARTH	3"
CONCRETE PLACED IN FORMS - EXPOSED TO WEATHER/EARTH:	

BARS #5 AND SMALLER 1-1/2"
BARS #6 AND LARGER 2"
COLUMNS, GIRDERS, BEAMS 1-1/2"
SLABS OR WALLS NOT EXPOSED TO WEATHER OR EARTH 1"

- 4.3. SPLICES IN REINFORCEMENT ARE NOT PERMITTED EXCEPT AS DETAILED OR AUTHORIZED BY STRUCTURAL ENGINEER.
- 4.4. LAP ALL CONTINUOUS REINFORCING BARS 36 DIAMETERS AT SPLICES, TEES, AND CORNERS.
- 4.5. SPLICE CONTINUOUS TOP BARS AT MIDSPAN, SPLICE CONTINUOUS BOTTOM BARS OVER THE SUPPORT.
- 4.6. PROVIDE ACCESSORIES NECESSARY TO PROPERLY SUPPORT REINFORCING AT POSITIONS SHOWN ON PLANS AND DETAILS.
- 4.7. ENSURE HORIZONTAL CONTINUITY IN WALLS, FOOTINGS AND GRADE BEAMS, BY PROVIDING CORNER BARS AT ALL CORNERS AND INTERSECTIONS, CORNER BARS SHALL MATCH SIZE AND SPACING OF HORIZONTAL REINFORCING AND EXTEND A MINIMUM OF 36 BAR DIAMETERS BEYOND THE CORNER.
- 4.8. PLACE 2-#5 (1 EACH FACE) WITH 2'-0" PROJECTION AROUND OPENINGS THROUGH FLOOR TOPPING SLABS, UNLESS NOTED.
- 4.9. WELDING OF REINFORCING SHALL NOT BE PERMITTED UNLESS SPECIFICALLY CALLED FOR OR APPROVED BY THE STRUCTURAL ENGINEER. DO NOT RE-BEND ANY BARS WITH A YIELD STRESS GREATER THAN 40 KSI. THE USE OF HEAT TO FACILITATE BENDING OF REINFORCING BARS WILL NOT BE PERMITTED.
- 4.10. RUSTED REINFORCEMENT WILL NOT BE REJECTED PROVIDED THE MINIMUM DIMENSIONS AND CROSS SECTIONAL AREA OF A HARD WIRE BRUSH SPECIMEN MEET THE PHYSICAL REQUIREMENTS FOR THE SIZE AND GRADE OF THE STEEL SPECIFIED.
- 4.11. RUSTED REINFORCEMENT WILL NOT BE REJECTED PROVIDED THE MINIMUM DIMENSIONS AND CROSS SECTIONAL AREA OF A HARD WIRE BRUSH SPECIMEN MEET THE PHYSICAL REQUIREMENTS FOR THE SIZE AND GRADE OF THE STEEL SPECIFIED.

4.12. CONCRETE REINFORCING SHALL CONFORM TO THE FOLLOWING TABLE:

USE	ASTM	YIELD, KSI	NOTES
MILD REINFORCING	A615	60	
COLUMN TIES	A615	60	#3 BARS, 40 KSI
BEAM STIRRUPS	A615	60	#3 BARS, 40 KSI
WELDABLE	A715	60	

5. TIMBER TREATED PILING:

- 5.1. UNLESS OTHERWISE REQUIRED, TIMBER PILING SHALL MEET THE REQUIREMENTS OF ASTM D25.
- 5.2. THE MINIMUM CIRCUMFERENCE OF ROUND PILING AT A SECTION 3 FEET FROM THE BUTT, MEASURED UNDER THE BARK, SHALL BE AS FOLLOWS:

LENGTH OF PILING	MIN CIRCUMFERENCE 3 FEET FROM BUTT
40' AND UNDER	38"
OVER 40'	41"

6. TIMBERS AND TREATMENT SYSTEMS

- 6.1. INDIVIDUAL PIECES SHALL BE SELECTED SO THAT KNOTS AND OBVIOUS MINOR DEFECTS ARE NOT LOCATED IN THE CENTER OF SPANS AND WILL NOT INTERFERE WITH THE PLACING OF BOLTS, PROPER NAILING, OR THE MAKING OF SOUND CONNECTIONS.
- 6.2. LUMBER MAY BE REJECTED BY THE ENGINEER FOR EXCESSIVE WARP, TWIST, BOW OR CROOK, MILDEW, FUNGUS OR MOLD AS WELL AS FOR IMPROPER GRADE MARKING.

BULKHEAD MATERIAL (SALTWATER)

MEMBER/ LOCATION	MEMBER SIZE (TYP)	LUMBER GRADE	AWPA STANDARD	SURFACE TEXTURE	TREATMENT LEVEL
TIMBER FACE PILING (ROUND)	PLANS	ASTM D25	UC5C	ROUND PILING	2.50 CCA
WALER BEAM FRONT	PLANS	SYP-2	UC5C	S4S OR ROUGH	2.50 CCA
WALER BEAM REAR	2X8	SYP-2	UC5C	S4S OR ROUGH	2.50 CCA
SHEET PILING (SHEETING)	PLANS		UC5C	TONGUE& GROOVE	2.50 CCA
BULKHEAD CAP	2X6	SYP-2	UC4B	S4S	0.60 CCA
CAP SUPPORT RAIL (FRONT)	2X8	SYP-2	UC4B	S4S	0.60 CCA 0.60 ACQ
CAP SUPPORT RAIL (REAR)	2X8	SYP-2	UC4B	S4S	0.60 CCA 0.60 ACQ
DEADMAN PILING (ROUND)	10" DIA.	ASTM D25	UC4B UC4C	ROUND PILING	0.80 CCA

7. STRUCTURAL STEEL

- 7.1. STEEL CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" BY AISC.

SHAPE	ASTM	MIN YIELD STRENGTH, KSI	NOTES
WF BEAMS	A992	50	BEAMS AND COLUMNS
ROLLED SHAPES	A36	36	ANGLES AND CHANNELS
PIPE	A53	35	
TUBE	A500 GR B	46	
PLATES	A36	36	
	A36	36	
BOLTS	A325		
ANCHOR RODS	F1554	36	UNLESS OTHERWISE NOTED

8. VINYL SHEETPIILING:

- 8.1. ALL VINYL SHEET PILING SHALL BE TIDEWALL VINYL SHEET PILING SERIES TW35 OR AN ENGINEER APPROVED EQUAL MEETING THE FOLLOWING REQUIREMENTS: THE SHEET PILING SHALL BE UV INHIBITED, IMPACT MODIFIED, WEATHERABLE RIGID VINYL, AND MEET THE REQUIREMENTS OF ASTM D790, ASTM D 638, ASTM D 4216, AND ASTM D 4226. THE LENGTH OF SHEET PILING FURNISHED ARE INDICATED ON THE PLANS OR AS AUTHORIZED BY THE ENGINEER.
- 8.2. INTERLOCKING PVC PLASTIC SHEETPIILING MEETING THE MINIMUM SPECIFICATIONS LISTED BELOW:

PHYSICAL PROPERTIES	UNIT	SPECIFICATION
MATERIAL SERIES		TW50, TW70 (TIDEWALL)
WEIGHT	LB/LF	3.25
THICKNESS	IN	0.25
LINEAR COVERAGE/SHEET	IN	12.00
DEPTH OF CROSS SECTION	IN	7.0

MECHANICAL PROPERTIES	UNIT	SPECIFICATION
TENSILE STRENGTH	LB/IN~2	6,300
FLEXURAL STRENGTH	LB/IN2	13,000
FLEXURAL MODULUS	LB~IN2	380,000
SX	IN/FI IN.	10.9
IMPACT STRENGTH	LB/IN2	13,750
MAX MOMENT	FI.LB	6,450
ALLOW MOMENT	FI.LB	2,150

- 8.3. STORING AND HANDLING. AT ALL POINTS, SUITABLE PRECAUTIONS SHALL BE TAKEN TO PREVENT BREAKAGE, SPLITTING, WARPING, DISTORTION OR ANY DAMAGE THAT MAY CAUSE THE PILING TO BE REJECTED. THE PILING SHALL BE HANDLED WITH NYLON ROPE SLINGS OR BY HAND.

9. DECKING SPECIFICATIONS:

- 9.1. MOISTURE SHIELD VANTAGE DECKING SYSTEMS.
- 9.1. SIZE: 2"x6" BOARD. (1.5" X 5.5" ACTUAL DIMENSIONS)
- 9.2. COLOR: CAPE COD GRAY.


10. TIE RODS (ANCHOR RODS)

- 10.1. ALL STEEL RODS SHALL BE EITHER ALL STAINLESS STEEL (SS304 OR SS316) OR ALL HOT DIP GALVANIZED (ASTM A136) STEEL (ASTM A36 OR 572). THIS INCLUDES TIE RODS, ALL THREADS, COUPLERS, WASHERS, NUTS, CARRIAGE BOLTS, AND LAG SCREWS. NO MIXING OF STEEL TYPES WILL BE ALLOWED.
- 10.2. TURNBUCKLES SHALL CONFORM TO THE REQUIREMENTS OF THE AISC "STEEL CONSTRUCTION MANUAL".
- 10.3. STEEL (SUCKER) RODS FOR AUGERS SHALL BE TYPE C 7/8-INCH DIAMETER, API GRADE C. MINIMUM TENSILE STRENGTH SHALL BE 90 KSI PER API SPECIFICATION 11B.
- 10.4. COMPOSITE ANCHOR RODS. COMPOSITE (FRP VINYLESTER RESIN) TIE-ROD HAVING ULTIMATE THREAD/NUT/WASHER/EPOXY ASSEMBLY CAPACITY OF 10,000 LBS. (BASED ON DOUBLE NUT ASSEMBLY). ALSO, ULTIMATE FLEXURAL STRESS OF 50,000 PSI AND MAXIMUM WATER ABSORPTION OF 0.25% PER ASTM D570.

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

SHEET:		MATERIAL NOTES	
PROJECT:		PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
		DATE:	07/14/2021
		SCALE:	NTS
SHEET NO:		S0.02	
JOB NO:	20-244	REV:	A

DWG SIZE: 17"x11"

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11. GEOTEXTILE/GEOGRID

- 11.1. **DEFINITION:** FILTER FABRIC IS A SPECIAL FABRIC USUALLY USED IN DRAINAGE APPLICATIONS TO ALLOW WATER FLOW WITHOUT CLOGGING OR BINDING BY SOIL PARTICLES. TYPE1: STANDARD WEIGHT FABRIC FOR RETAINING WALLS AND SOIL SEPARATION. TYPE2: HIGH STRENGTH FABRIC FOR ROCK RIPRAP OR OTHER SEVERE USE.
- 11.2. GENERAL REQUIREMENTS. BOTH TYPES OF FILTER FABRIC HAVE THE FOLLOWING QUALITIES:
- 11.2.1. THE FABRIC CONSISTS EXCLUSIVELY OF MANMADE THERMOPLASTIC FIBERS, IS A NON-WOVEN GEOTEXTILE FABRIC, AND FORMS A MAT OF UNIFORM QUALITY.
- 11.2.2. FABRIC FIBERS ARE CONTINUOUS AND RANDOM THROUGHOUT THE FABRIC.
- 11.2.3. THE FABRIC IS MILDEW RESISTANT AND ROT-PROOF, AND IT IS SATISFACTORY FOR USE IN A WET SOIL AND AGGREGATE ENVIRONMENT.
- 11.3. THE FABRIC MUST CONFORM TO THE REQUIREMENTS LISTED BELOW WHEN TESTED IN ACCORDANCE WITH THE TEST METHODS SPECIFIED.

PHYSICAL PROPERTIES	TEST METHOD	TYPE1	TYPE2
FABRIC WEIGHT (OZ./SQ. YD.)	TEX-616-J	4	6
PREMITTIVITY (1/SEC)	D4491	1.0, MIN	0.5, MIN
TENSILE STRENGTH (LBS.)	D4632	100	200
APPARENT OPENING SIZE	D4751	70-100	8-120
ELONGATION AT YIELD (%)	D4632	20-100	20-100
TRAPEZOID TEAR (LBS.)	D4533	35	75

- 11.4. PACKAGING. PROVIDE FABRIC IN THE LENGTH AND WIDTH SPECIFIED ON THE PLANS, SPECIFIED IN THE PURCHASE ORDER AWARDED BY THE STATE OR AS APPROVED. WIND FABRIC ONTO SUITABLE CYLINDRICAL FORMS OR CORES TO AID IN HANDLING AND UNROLLING.

12. HARDWARE:

- 12.1. MACHINE BOLTS, DRIFT BOLTS, DOWELS, ETC., SHALL BE GALVANIZED WROUGHT IRON OR GALVANIZED STEEL WITH SQUARE HEADS AND HEX NUTS. BOLTS SHALL BE THE REQUIREMENTS OF THE LATEST EDITION OF ASTM SPECIFICATION A307. SIZE SHALL BE AS SHOWN ON THE PLANS.
- 12.2. FASTENERS: SMOOTH SHANK OR DEFORMED SHANK NAILS. STAINLESS STEEL (TYPE 304 OR 316) OR DECKING SCREWS. SEE PLANS FOR SIZE REQUIREMENTS.
- 12.3. BOLTS:. 3/4-INCH MINIMUM UNLESS OTHERWISE NOTED.
- 12.4. PLATES: 1/4-INCH THICK MINIMUM UNLESS OTHERWISE NOTED.
- 12.5. WASHERS: OGEE (DOCK) WASHER OR 1/4-INCH TO FIT STANDARD SIZE BOLT,
- 12.6. WIRE NAILS AND SPIKES SHALL BE GALVANIZED STEEL, CIRCULAR CROSS-SECTION WITHOUT TAPER WITH HEAD AND POINT AND OF GOOD QUALITY. SIZE SHALL BE AS SHOWN ON THE PLANS.
- 12.8. ROUGH HARDWARE: JOIST HANGERS, STRAPS, HOLD DOWNS, ETC., SHALL BE AS MANUFACTURED BY SIMPSON COMPANY OR EQUAL. THE MAXIMUM SIZE AND NUMBER OF FASTENERS SPECIFIED BY THE MANUFACTURER SHALL BE USED UNLESS NOTED OTHERWISE.
- 12.9. WASHERS:
- 12.9.1. CAST IRON WASHERS SHALL BE THE "O-GEE" TYPE OF THICKNESS EQUAL TO THE DIAMETER OF THE BOLT. WASHER DIAMETER SHALL BE 4 TIMES THE BOLT DIAMETER.
- 12.9.2. PLATE WASHERS SHALL BE GALVANIZED WITH SQUARE SIDES EQUAL TO THE FOUR TIMES THE DIAMETER OF THE BOLT. THE THICKNESS SHALL EQUAL ONE-HALF THE DIAMETER OF THE BOLT.
- 12.9.3. BEVELED WASHERS SHALL BE PROVIDED AT DESIGNATED INSTALLATIONS.

13. CORROSION PROTECTION

- 13.1. ALL HARDWARE, WITH THE EXCEPTION OF TIE RODS AND CAST IRON WASHERS SHALL BE GALVANIZED, IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST EDITION OF ASTM A123, A153, OR A386, AS APPLICABLE.
- 13.2. PROTECTIVE COATINGS FOR TIE RODS: TC PRIMECOAT AND TAPECOAT-20, HOT APPLIED, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- 13.3. FASTENERS AND CONNECTORS FOR PRESERVATIVE-TREATED WOOD.
- 13.3.1. FASTENERS, INCLUDING NUTS AND WASHERS, IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL BE OF HOT-DIPPED ZINC-COATED GALVANIZED (HDG) STEEL, STAINLESS STEEL (TYPE 304 OR 316), SILICON BRONZE OR COPPER. FASTENERS OTHER THAN NAILS, TIMBER RIVETS, WOOD SCREWS AND LAG SCREWS SHALL BE PERMITTED TO BE OF MECHANICALLY DEPOSITED ZINC-COATED STEEL WITH COATING WEIGHTS IN ACCORDANCE WITH ASTM B-695, CLASS 55 MINIMUM.
- 13.3.1. CONNECTORS THAT ARE USED IN EXTERIOR APPLICATIONS AND IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL HAVE COATING TYPES AND WEIGHTS IN ACCORDANCE WITH THE TREATED WOOD OR CONNECTOR MANUFACTURER'S RECOMMENDATIONS. IN THE ABSENCE OF MANUFACTURER'S RECOMMENDATIONS, A MINIMUM OF ASTM A653, TYPE G185 ZINC-COATED GALVANIZED STEEL, OR EQUIVALENT, SHALL BE USED.

- 13.3.2. FASTENINGS FOR WOOD FOUNDATIONS. FASTENINGS, INCLUDING NUTS AND WASHERS, FOR WOOD FOUNDATIONS SHALL BE OF TYPE 304 OR 316 STAINLESS STEEL. EXCEPTION: WHEN FRAMING LUMBER IS TREATED WITH CHROMATED COPPER ARSENATE (CCA) AND THE MOISTURE CONTENT OF THE FRAMING REMAINS AT 19 PERCENT OR LESS (SUCH AS STUDS, BLOCKING, AND TOP PLATES OF EXTERIOR AND INTERIOR BASEMENT WALLS), HOT-DIPPED GALVANIZED (ZINC-COATED) STEEL FASTENERS CONFORMING TO THE REQUIREMENTS OF ASTM A153 SHALL BE PERMITTED IN LUMBER-TO-LUMBER CONNECTIONS.

13.4. COAL-TAR EXPOXY COATINGS

- 13.4.1. PROVIDE PROTECTIVE COATING SYSTEM AND COAL-TAR EPOXY COATING CONFORMING TO MIL. SPEC. DOD-P-23236A, TYPE I, CLASS 2.
- 13.4.2. PETROLEUM-BASE PRESERVATIVE SHALL CONFORM TO MIL. SPEC. MIL-C-16173D.

14. DRAINAGE SYSTEMS:

- 14.1. PROVIDE JETFILTER ASSEMBLY PER MANUFACTURER'S RECOMMENDATIONS.

15. BACKFILL FOR BULKHEAD/RETAINING WALL MATERIALS.

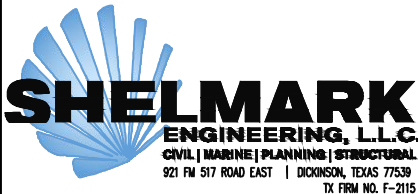
- 15.1. SATISFACTORY MATERIALS SHALL BE FREE DRAINING, CLEAN, BANK SAND OR ENGINEER APPROVED EQUAL.
- 15.2. CLEAN SANDS AND GRAVELS (SW, SP, SM, GW, GP, GM) ARE THE MOST SUITABLE MATERIALS..
- 15.3. TYPE 1 (SELECT FILL). MATERIAL SHALL CONSIST OF HOMOGENOUS SOILS FREE OF ORGANIC MATTER AND ROCKS LARGER THAN 6-INCH IN DIAMETER AND POSSESSING AN ATTERBURG PLASTICITY INDEX (P.I.) FROM 3% TO 15%, AND WITH A LIQUID LIMIT (LL) OF 30% OR LESS.

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

DWG SIZE: 17"X11"



DATE: 07/14/2021

SCALE: 1/4" = 1'-0"

SHEET NO:

S0.03

JOB NO: 20-244

REV: A

MATERIAL NOTES

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

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BULKHEAD CONSTRUCTION NOTES:

1. REFERENCES

- 1.1. REFERENCE LINES AND GRADES. THE OWNER SHALL PROVIDE REFERENCES FOR LINE AND GRADE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE REFERENCE POINTS AND REPLACE THEM IF LOST OR DAMAGED.

2. DEMOLITION

- 2.1. PILE REMOVAL: THREE METHODS ARE USED TO REPAIR OR REPLACE PILING: PARTIAL CUTTING WITH NEW PILE SECURED DIRECTLY ON TOP, FULL EXTRACTION, OR CUTTING AT THE MUDLINE.

- 2.2. FULL EXTRACTION: IF PARTIAL CUTTING IS NOT AN OPTION AND THE PILE IS NOT TOO DETERIORATED OR ROTTED, THEN THE PILE IS REMOVED IN ITS ENTIRETY. CONSTRAINTS TO REMOVAL ARE IF THE PILE IS SO ROTTED THAT IT FALLS APART OR BREAKS DURING REMOVAL OR IF THE PILE IS DRIVEN FIRMLY AND DEEP INTO THE SUBSTRATE WHERE THE PILE WILL BREAK UPON ATTEMPTS AT FULL EXTRACTION. FOR FULL EXTRACTION, THE PILE IS REMOVED EITHER BY USE OF A "CHOKER" CHAIN AND CRANE OR WITH A VIBRATORY PILE DRIVE. FOR THE "CHOKER" METHOD, THE "CHOKER" CHAIN IS PLACED SECURELY AROUND THE PILE AND THEN BY USING A CRANE MOUNTED ON A BARGE, THE PILE IS PULLED DIRECTLY UP UNTIL IT IS COMPLETELY OUT OF THE SUBSTRATE. FOR THE VIBRATORY PILE DRIVING METHOD, THE VIBRATORY PILE DRIVER IS MOUNTED ON A BARGE AND THE VIBRATORY HAMMER IS CLAMPED ONTO THE TOP OF THE PILE. THE VIBRATION OF THE PILE DRIVER LOOSENS THE PILE FROM THE SUBSTRATE. THE VIBRATORY HAMMER IS RAISED DIRECTLY UPWARD AS THE PILE LOOSENS UNTIL THE PILE IS COMPLETELY FREE FROM THE SUBSTRATE. THE VIBRATORY METHOD IS THE PREFERRED METHOD, ESPECIALLY WHEN THE PILE IS FIRMLY SECURED IN THE SUBSTRATE. THERE IS LESS LIKELIHOOD FOR THE PILE TO BREAK. ONCE REMOVED, THE PILE IS PLACED ON THE BARGE AND DISPOSED OF AT AN APPROPRIATE UPLAND LOCATION (DISPOSAL DEPENDS ON CHEMICAL TREATMENT OF PILING). HYDRAULIC WATER JETS ARE SOMETIMES USED TO LOOSEN PILES, BUT ARE NOT COVERED UNDER THIS PROGRAMMATIC BIOLOGICAL EVALUATION.

- 2.3. PILE CUT AT THE MUDLINE: WHEN THE PILE IS EITHER TOO DETERIORATED OR ROTTED TO THE EXTENT THAT EXTRACTION WOULD CAUSE GREATER IMPACTS BECAUSE OF THE PILE BREAKING AND SUBSEQUENT NEEDS TO REMOVAL ALL MATERIAL DISPERSED IN THE WATER COLUMN, THEN THE PILE IS CUT AT THE MUDLINE. IF THE PILE INADVERTENTLY BREAKS DURING EXTRACTION, CUTTING WILL ALSO THEN OCCUR ALONG WITH REMOVAL OF THE BROKEN PORTIONS WITHIN THE WATER COLUMN. THE PILES ARE CUT BY A DIVER UNDERWATER USING A PNEUMATIC SAW. DEPENDING ON THE HEIGHT OF THE PILES, THEY MAY BE CUT IN SECTIONS.

- 2.4. PILE PLACEMENT: UPON REMOVAL OF THE PILING, NEW OR RECYCLED PILING ARE DRIVEN USING A BARGE-MOUNTED PNEUMATIC PILE DRIVER, STANDARD DROP-HAMMER, OR VIBRATORY PILE DRIVER. A PILE IS LOWERED THROUGH THE PILING-GUIDE UNTIL IT RESTS IN PLACE ON THE BOTTOM AND THEN DRIVEN IN PLACE. PNEUMATIC PILE DRIVERS ARE MOST COMMON TODAY BUT THE OLDER PILE DRIVERS USING A HEAVY WEIGHT DROPPING ON TOP OF THE PILE ARE STILL BEING USED. HYDRAULIC WATER JETS ARE NOT COVERED AS METHOD OF PILE PLACEMENT UNDER THIS PROGRAMMATIC BIOLOGICAL EVALUATION.

3. ORIENTATION AND LOCATION:

- 3.1. THE NEW BULKHEAD SHALL BE LOCATED IN FRONT OF THE EXISTING ALUMINUM BULKHEAD. THE VOID SHALL BE FILLED WITH GRANULAR FILL MATERIAL.
- 3.2. THE EXISTING <ALUMINUM> BULKHEAD SHALL REMAIN IN PLACE EXCEPT IN AREAS WHERE IT INTERFERES WITH THE NEW BULKHEAD. THE MATERIAL SHALL BE REMOVED FROM THE AREAS WHERE THE INTERFERENCE OCCURS.
- 3.3. THE HEIGHT OF THE PROPOSED CAP AND BULKHEAD SHALL BE EQUAL TO THE ELEVATION OF THE EXISTING BULKHEAD.

4. TIMBER FACE PILING AND SHEETING INSTALLATION

- 4.1. TIMBER PILING SHALL BE DRIVEN, JETTED OR AUGERED AT THE LOCATION AND TO THE ELEVATION SHOWN ON THE PLANS OR AS DESIGNATED BY THE ENGINEER.
- 4.2. PENETRATION: THE PILING SHALL BE DRIVEN APPROXIMATELY TO THE DEPTH SHOWN ON THE PLANS UNLESS PROPER BEARING RESISTANCE IS ACHIEVED AND APPROVED BY THE ENGINEER.
- 4.3. CUT-OFFS. AFTER DRIVING, SAW THE PILING OFF AT A TRUE PLANE AS INDICATED ON THE PLANS. THE FINAL PLAN ELEVATIONS ARE TO BE WITHIN 2-INCHES OF THE ESTABLISHED ELEVATION.
- 4.4. DRIVING EQUIPMENT. TIMBER PILING SHALL BE DRIVEN WITH GRAVITY OR POWER HAMMERS, AS DESCRIBED HEREIN.

- 4.4.1. GRAVITY HAMMER – CONTRACTOR SHALL FURNISH A CERTIFIED SCALE WEIGHT OF THE HAMMER TO BE USED. GRAVITY HAMMERS FOR DRIVING TIMBER PILING SHALL WEIGH NOT LESS THAN 2000 POUNDS AND NOT MORE THAN 3500 POUNDS. THE DROP SHALL BE REGULATED SO AS TO AVOID INJURY TO THE PILE, AND IN NO CASE SHALL EXCEED 15 FEET.
- 4.4.2. POWER HAMMERS SHALL ENSURE THE DESIGNATED STROKE LENGTH AND NUMBER OF BLOWS PER MINUTE. POWER HAMMERS SHALL OPERATE AT NOT LESS THAN 80 PERCENT OF THE MANUFACTURER'S RATED CAPACITY. THE WEIGHT OF THE RAM SHALL BE NOT LESS THAN 2000 POUNDS. POWER HAMMERS SHALL DEVELOP NOT LESS THAN 6000 AND NOT MORE THAN 9000 FOOT POUNDS OF ENERGY PER BLOW AT EACH FULL STROKE OF THE PISTON.

- 4.4.2.1. DIESEL HAMMERS SHALL BE OF THE ENCLOSED RAM TYPE, EQUIPPED WITH GAUGES AND CHARTS TO EVALUATE EQUIVALENT ENERGY PRODUCED DURING DRIVING. MAXIMUM RAM STROKE SHALL BE 10 FEET.
- 4.4.2.2. STEAM, HYDRAULIC OR COMPRESSED AIR HAMMERS SHALL BE EQUIPPED WITH A BOILER OR AIR COMPRESSOR WITH A CAPACITY AT LEAST EQUAL TO THAT SPECIFIED BY THE HAMMER MANUFACTURER.

- 4.5. JETTING. JETTING SHALL ONLY BE DONE WHEN THE SPECIFIED PENETRATION CANNOT BE OBTAINED BY DRIVING OR OTHER METHODS. CONTRACTOR SHALL PROVIDE SUFFICIENT POWER FOR JETTING OPERATION TO OPERATE ONE PUMP AND TWO, 2 1/2 INCH DIAMETER PIPES EQUIPPED WITH 3/4 INCH DIAMETER JET NOZZLES AT A PRESSURE OF 150 PSI. DRIVE PILING WITH HAMMER TO AT LEAST ONE FOOT BELOW DEPTH OF JETTING, OR 100 HAMMER BLOWS, BUT NOT LESS THAN THE APPROXIMATE PENETRATION AND REQUIRED BEARING VALUE. FOR BRIDGE PILING, THE PILING SHALL BE DRIVEN A MINIMUM OF 2 FEET AFTER JETTING HAS CEASED.

- 4.6. NOTCHING: THE PILE SHALL BE NOTCHED AT THE TOP ONLY ENOUGH TO PROVIDE A SHELF FOR SUPPORTING THE BEAMS. THE NOTCH LENGTH SHALL BE LONG ENOUGH SO THAT ALL REQUIRED BOLTS PASS THROUGH BOTH THE BEAM AND THE PILE. NO MORE THAN 1/2 OF THE PILE THICKNESS SHALL BE REMOVED. THE PILES SHALL NOT BE NOTCHED AT ANY OTHER LOCATION.

- 4.7. DRIVE SHEET PILING PREFERABLY IN PAIRS) BY "DRIVING IN STEPS" OR "GANG DRIVING". DIRECTION OF INSTALLATION SHOULD BE WITH THE MALE SIDE OF THE SHEET WHEN POSSIBLE. MANDREL OR HELMET MAY BE REQUIRED IF DRIVING THROUGH HARD SOIL STRATA OR OBSTRUCTIONS. WATER JET BY DISPLACING OF SOIL SHALL ONLY BE USED WITH NON-COHESIVE SOILS(SANDS AND GRAVELS). WATER JET SHALL NOT BE USED IF DRIVING THROUGH CLAY, SILTS, OR IMMEDIATELY ADJACENT TO AN EXISTING STRUCTURE WITHOUT THE WRITTEN APPROVAL FROM THE ENGINEER. WATER MAY BE INTRODUCED TO INDUCE LUBRICATION AND LIQUIFACTION DURING INSTALLATION. IT IS VERY IMPORTANT THAT CONTRACTOR DRIVE SHEETS TO REQUIRED EMBEDMENT DEPTH. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR CUT-OFF OR INSTALL SHORTER SHEETS WITHOUT WRITTEN AUTHORIZATION FROM ENGINEER OR THE OWNER. ADEQUATE PRECAUTIONS SHALL BE TAKEN TO INSURE THAT PILES ARE DRIVEN PLUMB. SHEET PILING SHALL NOT BE DRIVEN MORE THAN 1/2-INCH PER FOOT OUT OF PLUMB IN THE PLANE OF THE WALL, NOR MORE THAN 1/16-INCH PER FOOT "OUT" OF PLUMB PERPENDICULAR TO THE PLANE OF THE WALL, NOR MORE THAN 1-INCH PER FOOT "IN" OF PLUMB PERPENDICULAR TO THE PLANE OF THE WALL.

5. VINYL (PVC) SHEET PILING INSTALLATION

- 5.1. DRIVING EQUIPMENT SHALL BE ANY OF THE FOLLOWING EQUIPMENT: 500 TO 3,500 POUND DROP HAMMER, APE, VULCAN, OR ICE VIBRATORY HAMMER, VIBRATORY PLATE COMPACTOR, CONCRETE BREAKER WITH DRIVING HELMET, WATER JET, RAIL JET, OR 90 LB. JACKHAMMER. NO OTHER EQUIPMENT WILL BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- 5.2. TOLERANCE FOR DRIVING. ALL SHEET PILING SHEETS SHALL BE PLUMB IN BOTH DIRECTIONS USING A CARPENTER'S LEVEL
- 5.3. A TEMPORARY TIMBER WALL TEMPLATE SHALL BE USED TO MAINTAIN PLUMBNESS OF THE SHEET PILE WALL.
- 5.4. PROTECTION OF SHEET PILING. A STEEL DRIVING HEAD SUITABLE FOR VINYL SHEET PILING SHALL BE USED. IF THE TOP OF THE SHEET PILING IS BEING DAMAGED DURING DRIVING, TIMBER CUSHION BLOCKS SHALL BE USED TO PROTECT THE SHEET PILING FROM DAMAGE DURING DRIVING. THE THICKNESS OF THE CUSHION BLOCK AND THE NUMBER OF DRIVES PER CUSHION BLOCK SHALL BE DETERMINED BY THE ENGINEER.
- 5.5. CUT-OFFS. ALL SHEET PILING SHALL BE DRIVEN TO THE ELEVATIONS AS SHOWN ON THE PLANS. NO CUTOFFS SHALL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
- 5.6. OTHER DRIVING METHODS. DEPENDING ON THE CONDITIONS, SOME OF THE FOLLOWING METHODS CAN BE USED TO AID IN DRIVING OR AS BACKUP WHEN DRIVING IS TOO DIFFICULT.

- 5.6.1. WATER JETTING IS THE DIRECT INJECTION OF WATER, COMMONLY AT HIGH PRESSURE AND VOLUME, AT THE TOE OF THE SHEET PILING WITH THE PURPOSE OF DISPLACING AND SATURATING SOIL TO ENCOURAGE PENETRATION OF THE SHEET PILE OR REMOVAL OF OBSTRUCTION. REGULATION IS DIFFICULT AND BECAUSE OF THE POSSIBLE IMPACT TO ADJACENT SOIL OR STRUCTURES, JETTING SHALL NOT BE PERMITTED.
- 5.6.2. A TRENCH AND FILL OPERATION IS USED TO EXCAVATE THE SOIL (TO AID IN DRIVING) OR TO ELIMINATE IT ALL TOGETHER. SMALL "STARTER TRENCHES" ARE OFTEN USED TO GET BELOW COMPACTED FILL NEAR THE SURFACE AND "TOE-IN" THE SHEETS. IN SOME CASES, MAXIMUM INSTALLATION EFFICIENCY IS ACHIEVED BY COMPLETELY TRENCHING TO THE DESIRED EMBEDMENT DEPTH. BACKFILLING SHALL BE PERFORMED WITH SOIL, BENTONITE SLURRY, GROUT, OR FLOWABLE FILL, DEPENDING ON THE DEPTH OF THE TRENCH AND PROJECT SPECIFICATIONS AND REQUIREMENTS. COMPACTED BACKFILL SHALL NOT BE USED DUE TO DIFFICULTIES IN GETTING PROPER COMPACTION IN AND AROUND THE FLANGES AND ANGLED WEBS OF THE SHEET PILING.

6. DRIVEN PILE CAPACITY

- 6.1. THE ULTIMATE PILE CAPACITY WILL BE DETERMINED BY THE DESIGN ENGINEER. DRIVE PILES WITH APPROVED DRIVING EQUIPMENT TO THE ORDERED LINKED OR OTHER LINKS NECESSARY TO OBTAIN THE REQUIRED ULTIMATE PILE CAPACITY. JETTING, PRE-DRILLING OR OTHER METHODS TO FACILITATE PILE PENETRATIONS SHALL NOT BE USED UNLESS SPECIFICALLY PERMITTED BY THE DESIGN ENGINEER.

- 6.2. PENETRATION PER BELOW MAY BE MEASURED EITHER DURING INITIAL DRIVING OR DURING RE-DRIVING FOLLOWING A SET PERIOD OF TIME AS DETERMINED BY THE DESIGN ENGINEER.
- 6.3. PRACTICAL REFUSAL. PRACTICAL REFUSAL WILL BE DETERMINED BY THE DESIGN ENGINEER, AND WILL BE A CONDITION WHERE THE BELOW COUNT EXCEEDS EITHER TWO TIMES THE NUMBER OF BLOWS REQUIRED IN 1 FOOT OR THREE TIMES THE NUMBER OF BLOWS REQUIRED IN 3 INCHES TO ACHIEVE THE REQUIRED BEARING VALUE, NOT TO EXCEED FIVE BLOWS PER INCH. PILES REACHING PRACTICAL REFUSAL SHALL NOT BE DRIVEN FURTHER.

7. WALER INSTALLATION

- 7.1. SET WALERS TO REQUIRED LEVELS AND LINES, WITH MEMBERS PLUMB, TRUE TO LINE, CUT, AND FITTED.
- 7.2. NO MODIFICATIONS SHALL BE DONE TO THE EXISTING FRONT AND BACK WALERS.
- 7.3. SELECTION OF WALER PIECES: CAREFULLY SELECT INDIVIDUAL PIECES SO THAT KNOTS AND OBVIOUS DEFECTS WILL NOT INTERFERE WITH PLACING BOLTS OR PROPER NAILING OR MAKING PROPER CONNECTIONS. DO NOT USE WALER PIECES WITH EXCESSIVE DEFECTS THAT WILL INTERFERE WITH THE BENDING OF THE MEMBER.
- 7.4. SPLICES: SPLICES FOR BOTH FRONT AND REAR WALERS SHALL BE PROVIDED AS SHOWN ON THE PLANS IF REQUIRED.
- 7.5. METAL SPLICE PLATES: INSTALL METAL SPLICE PLATES AT ALL LOCATIONS SHOWN ON THE PLANS. INSTALL FASTENERS THROUGH EACH FASTENER HOLE IN PLATE.

8. WALL ANCHORING SYSTEM (DEADMAN)

- 8.1. ANCHORS RODS AND DEADMAN ANCHORS SHALL BE INSTALLED AT SPACING, ELEVATION AND ANGLE AS SHOWN ON THE PLANS.
- 8.2. ANCHORING SYSTEM SHALL BE PROOF LOADED TO MINIMUM DESIGN VALUES INDICATED ON PLANS.
- 8.3. ANCHORS USED TO TIEBACK THE BULKHEAD SHALL BE AS NOTED ON THE DRAWINGS.
- 8.4. EACH TIE-BACK ROD SHALL BE ATTACHED TO AN APPROVED REACTION ANCHOR PILE OR CONCRETE DEADMAN. SUCH ANCHOR PILE OR DEADMAN SHALL BE LOCATED BEHIND THE BULKHEAD A MINIMUM DISTANCE OF 1½ TIMES THE SHEET PILE LENGTH OR AN ALTERNATE METHOD APPROVED BY THE ENGINEER.
- 8.5. THE USE OF HOUSE PILINGS, CONCRETE FOUNDATIONS, DRIVEWAYS, SWIMMING POOL, OR OTHER STRUCTURES FOR ANCHORAGE POINTS IN LIEU OF ANCHOR PILES OR DEADMEN WILL NOT BE PERMITTED UNLESS DESIGN OF SUCH IS SUBMITTED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
- 8.6. NO LESS THAN THREE FULL THREAD SHALL EXTEND BEYOND THE OUTSIDE FACE OF NUTS AT TIME OF FINAL PROJECT ACCEPTANCE. ROD MATERIAL EXTENDING MORE THAN 2-INCHES BEYOND THE FACE OF EXPOSED NUT SHALL BE REMOVED.
- 8.7. WELDING CARBON STEEL TO 316 STEEL SHALL USE 309L FILLER MATERIAL. MINIMUM WELD LENGTH SHALL BE 12-INCHES. CONNECTION SHALL BE COATED IN COAL TAR EPOXY BEFORE BACKFILL.
- 8.8. REMOVE LOOSE RUST AND SCALE, DUST OR DIRT PRIOR TO PRIMING. REMOVE OIL AND GREASE WITH SUITABLE SOLVENT.

9. WELDING OF STRUCTURAL STEEL

- 9.1. FIELD WELDING SHALL CONFORM TO ALL REQUIREMENTS IN THE STRUCTURAL WELDING CODE – STEEL, ANSI/AWS D1.1, AS PUBLISHED BY THE AMERICAN WELDING SOCIETY (AWS).
- 9.2. MINIMUM STRENGTH OF WELDED CONNECTIONS. UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL FIELD WELDS SHALL DEVELOP THE FULL TENSILE STRENGTH OF THE MEMBER OR ELEMENT JOINED.
- 9.2. THE MINIMUM FILLET WELD SIZE OTHER THAN NOTED SHALL CONFORM TO THE LATEST EDITION OF "SPECIFICATION FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" BY AISC.
- 9.3. ELECTRODES. ELECTRODES FOR VARIOUS WELDING PROCESS SHALL BE SMAW: E70XX LOW HYDROGEN.
- 9.4. ALL SPLICE WELDS ON PILING SHALL BE RADIO GRAPHICALLY EXAMINED AT THE CONTRACTOR'S EXPENSE. COPIES OF DOCUMENTATION OF SUCH EXAMINATION SHALL BE SENT TO THE ENGINEER. ALL WELDS ON H-PILES, BRACES, AND PLATES SHALL MEET THE REQUIREMENTS OF STRUCTURAL WELDING CODE AWS D-1.1.
- 9.5. ALL WELDS SHALL BE GROUND SMOOTH, AND EXPOSED PLATE EDGES SHALL BE CUT AND GROUND SMOOTH, AS DETAILED, BEFORE SAND BLASTING OPERATIONS BEGIN.
- 9.6. WELDING CARBON STEEL TO 316 STAINLESS STEEL SHALL USE 309L FILLER METAL.

10. FLANKING (RETURN) ENDWALL / CORNERS

- 10.1. RETURNS (WING WALLS) MUST BE CONSTRUCTED AT THE ENDS OF ALL BULKHEADS TO PREVENT THE POSSIBILITY OF FLANKING (SCOUR AROUND THE END).
- 10.2. ALSO, INSTALL CONCRETE RIPRAP AT THE TOE AND AT THE END OF THE RETURN WALL.

11. DRAINAGE SYSTEMS

- 11.1. PROVIDE 1-1/2 INCH DIAMETER WEEP HOLES WITH FILTER FABRIC AND GRAVEL FILTER MATERIAL (1 CUBIC FOOT) SHOULD BE INSTALLED AT MAXIMUM 5 FEET (FT) ON CENTER AT APPROXIMATELY 6 INCHES ABOVE

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

CONSTRUCTION NOTES

PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX



DATE: 07/14/2021

SCALE: NTS

SHEET NO:

S0.04

JOB NO: 20-244

REV: A

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MUDLINE LINE OR AT APPROXIMATELY 6 INCHES ABOVE MEAN LOW WATER (MLW). SEE DETAILS FOR PROPER LOCATION TO DRILL WEEP HOLE.

11.2. STORM DRAIN EXTENSIONS

- 11.1.1. AFTER INSTALLATION OF THE BULKHEAD AND ANCHORING SYSTEM, THE EXISTING STORM DRAINS SHALL BE EXTENDED THROUGH THE VINYL SHEETPIILING AS SHOWN ON THE PLANS.
- 11.1.2. THE EXTENSION SHALL BE SEALED WITH ADEKA P201 AND ENCASED IN CONCRETE TO PRODUCE A WATERTIGHT CONNECTION.
- 11.1.3. SPECIAL CARE SHALL BE TAKEN NOT TO DAMAGE NEW OR EXISTING BULKHEADS AND THEIR RESPECTIVE ANCHOR SYSTEMS.

12. CONCRETE CAP

- 12.1. CONCRETE CAP IS REQUIRED ON CONCRETE SHEETPILE BULKHEADS. THE ANCHOR ROD SHALL BE HOOKED AND EMBEDDED INTO THE CAP. THE CAP SHALL ENCAPSULATE THE UPPER PORTION OF THE BULKHEAD AS INDICATED IN DETAILS "A" AND "B".

13. CONCRETE SIDEWALK CAP

- 13.1. THICKNESS TO BE A MIN OF 4" WITH #3 REBAR REINFORCING ON 16" CENTERS LONGITUDINAL AND 18" CENTERS PERPENDICULAR. PROVIDE A MIN OF 15" OVERLAP ON REINFORCING.
- 13.2. CONSTRUCT SIDEWALKS WITH 5 1/2 SACK PORTLAND CEMENT.
- 13.3. EXPANSION JOINTS TO BE PLACED EVERY 20' AND CONTROL BREAK JOINT EVERY 5'.

14. GEOTEXTILE FABRIC/GEOGRID

- 14.1. THE FILTER CLOTH SHALL BE LAID AS DESCRIBED BELOW HOWEVER, FOLDS AND WRINKLES IN THE FILTER CLOTH MUST BE AVOIDED.
- 14.2. THE FILTER CLOTH SHALL EXTEND A MINIMUM OF ONE (1) FOOT BELOW BERM LINE.
- 14.3. FABRIC SHOULD BE OVERLAPPED A MINIMUM OF 18 INCHES. OVERLAPS SHOULD BE PINNED USING GALVANIZED STEEL SECURITY PINS, AND POINTED AT ONE END. PINS SHOULD BE SPACED ALONG ALL OVERLAP ALIGNMENTS AT A DISTANCE OF APPROXIMATELY THREE (3) FEET CENTER-TO-CENTER. THE FILTER CLOTH SHOULD BE PINNED IN A CONDITION THAT EASILY CONFORMS TO THE WALL SURFACE.
- 14.4. DURING PLACEMENT OF THE BACKFILL, CARE SHOULD BE TAKEN TO AVOID PUNCTURING OR TEARING. THE BACKFILL SHOULD BE PLACED OVER THE FILTER CLOTH IN SUFFICIENT TIME TO PREVENT UV DAMAGE TO THE FABRIC.
- 14.5. THE BACKFILL SHOULD BE PLACED FROM THE CENTER OUTWARD. THE MAXIMUM HEIGHT OF DROP OF THE BACKFILL SHALL BE LIMITED TO THREE FEET (3').
- 14.6. THE FILTER CLOTH SHALL BE SECURELY FASTENED FROM THE TOP OF THE CAP TO THE MUD LINE AND TWO FEET LANDWARD, AS SHOWN IN DETAILS "A" AND "B". PLACEMENT OF THE BACKFILL MATERIAL AGAINST THE FABRIC SHALL NOT RESULT IN UNDUE TENSION ON THE FABRIC.
- 14.7. THE VERTICAL, LANDSIDE FACE OF THE BULKHEAD AGAINST WHICH THE FILTER CLOTH WILL BE PLACED SHALL BE CLEAN AND SMOOTH. IT SHALL BE FREE OF ANY SHARP PROTRUSIONS WHICH MAY PUNCTURE THE FABRIC.
- 14.8. THE FILTER CLOTH SHALL BE PLACED AFTER SEALING OF THE BULKHEAD AND BEFORE THE BACKFILLING WITH SOIL.
- 14.9. CONTRACTOR SHALL PROVIDE SUFFICIENT OVERLAPPING FOR ALL FILTER CLOTH CUTS NECESSARY FOR INSTALLATION AROUND THE TIE RODS.
- 14.10. ACCEPTABLE MANUFACTURERS OF FILTER CLOTH ARE EXXON, DUPONT AND CELONESE OR AN APPROVED EQUAL.
- 14.11. FILTER CLOTH WILL ALSO BE REQUIRED BEHIND RETURN (FLANKING) WALLS.

15. BACKFILL PLACEMENT AND COMPACTION:

- 15.1. DO NOT CONDUCT PLACEMENT OPERATIONS DURING INCLEMENT WEATHER.
- 15.2. DO NOT PLACE FILL UNTIL DENSITY AND MOISTURE CONTENT OF PREVIOUSLY PLACED MATERIAL COMPLY WITH SPECIFIED REQUIREMENTS.
- 15.3. SPREAD FILL MATERIAL EVENLY, FROM DUMPED PILES OR WIND-ROWS, INTO HORIZONTAL LAYERS APPROXIMATELY PARALLEL TO FINISHED GRADE. PLACE TO MEET SPECIFIED PRE-COMPACTED THICKNESS. BREAK CLODS AND LUMPS AND MIX MATERIALS BY BLADING, HARROWING, DISKING OR OTHER APPROVED METHOD. EACH LAYER SHALL EXTEND ACROSS FULL WIDTH OF FILL.
- 15.4. EACH LAYER SHALL BE HOMOGENEOUS AND CONTAIN UNIFORM MOISTURE CONTENT BEFORE COMPACTION. MIX DISSIMILAR ABUTTING MATERIALS TO PREVENT ABRUPT CHANGES IN COMPOSITION OF FILL.
- 15.5. LAYERS SHALL NOT EXCEED THE FOLLOWING PRE-COMPACTED THICKNESS:
 - 15.5.1. AREAS OF BACKFILLING FOR BULKHEAD STRUCTURES SHALL BE 8-INCH LOOSE LIFTS.
 - 15.5.2. OTHER AREAS: 12-INCH LOOSE LIFTS.
- 15.6. FOR STEEP SLOPES, CUT BENCHES INTO SLOPE AND SCARIFY BEFORE PLACING FILL. PLACE INCREASINGLY WIDER HORIZONTAL LAYERS OF SPECIFIED DEPTH TO THE LEVEL OF EACH BENCH.
- 15.7. REMOVE UNSUITABLE MATERIAL FROM THE SITE AND STOCKPILE EXCESS SOIL NOT BEING USED FOR EMBANKMENT.
- 15.8. COMPACT ALL EMBANKMENT FILL TO 95% STANDARD PROCTOR DENSITIES AT A MOISTURE CONTENT OF OPTIMUM TO PLUS OR MINUS 3% OPTIMUM AS DETERMINED BY ASTM D-698.
- 15.9. UNCOMPACTED BACKFILL.

- 15.9.1. COMPACTION OF BACKFILL IN ACTIVE PRESSURE ZONE OF BULKHEAD WILL NOT BE REQUIRED EXCEPT TO THE EXTENT NECESSARY TO PREVENT FUTURE SETTLEMENT. (APPROXIMATE BACKFILL COMPACTION EQUAL TO 85% OF STANDARD PROCTOR DENSITY.)
- 15.9.2. UNCOMPACTED BACKFILL MATERIAL ABOVE ANCHOR RODS SHALL BE PLACED BY METHODS WHICH WILL NOT IMPOSE EXCESSIVE CONCENTRATED OR UNBALANCED LOADS, SHOCK, OR IMPACT ON AND WHICH WILL NOT RESULT IN DISPLACEMENT OF RODS.
- 15.9.3. ALL BACKFILLS SHALL BE CONSTRUCTED IN LAYERS APPROXIMATELY PARALLEL TO THE FINISHED GRADE. AFTER COMPLETION OF THE BACKFILL, IT SHALL BE CONTINUOUSLY MAINTAINED TO ITS FINISHED GRADE, UNTIL THE PROJECT IS ACCEPTED.

16. CUTTING, FRAMING HOLES FOR BOLTS, DOWELS, RODS AND LAG SCREWS.

- 16.1. NOTCHING: THE PILE SHALL BE NOTCHED AT THE TOP ONLY ENOUGH TO PROVIDE A SHELF FOR SUPPORTING THE BEAMS. THE NOTCH LENGTH SHALL BE LONG ENOUGH SO THAT ALL REQUIRED BOLTS PASS THROUGH BOTH THE BEAM AND THE PILE. NO MORE THAN 1/2 OF THE PILE THICKNESS SHALL BE REMOVED. THE PILES SHALL NOT BE NOTCHED AT ANY OTHER LOCATION.
- 16.2. ANY COUNTERSINKING DEPTHS MUST BE LIMITED TO THE ACTUAL SPACE REQUIRED FOR THE WASHER AND BOLT HEAD WITH A SMALL ALLOWANCE. VERTICAL ORIENTED COUNTERSINKING SHOULD BE FILLED COMPLETELY WITH A BITUMINOUS MASTIC TO PREVENT WATER INTRUSION.
- 16.3. ALL CUTTING, FRAMING AND BORING OF TREATED TIMBERS SHALL BE DONE BEFORE TREATMENT INSOFAR AS PRACTICABLE.
- 16.4. HOLES FOR ROUND DRIFT BOLTS AND DOWELS SHALL BE BORED WITH A BIT 1/16-INCH LESS THAN IN DIAMETER THAN THE BOLTS OR DOWELS TO BE USED. THE DIAMETER OF HOLES FOR SQUARE DRIFT BOLTS OR DOWELS SHALL BE EQUAL TO THE LEAST DIMENSION OF THE BOLT OR DOWEL.
- 16.5. HOLES FOR MACHINE BOLTS SHALL BE BORED WITH A BIT OF THE SAME DIAMETER AS THE BOLT.
- 16.6. HOLES FOR RODS SHALL BE BORED WITH A BIT 1/16-INCH GREATER IN DIAMETER THAN THE ROD.
- 16.7. HOLES FOR LAG SCREWS SHALL BE BORED WITH A BIT NO LARGER THAN THE ROOT OF THE THREAD AND SHALL BE 1/2- INCH DEEPER THAN THE PENETRATION OF THE LAG SCREWS.

17. PAINTING/COATING:

- 17.1. SURFACES TO BE COATED: TIE RODS, FITTINGS AND BOLTS
 - 17.1.1. COAT SURFACES WITH COAL-TAR EPOXY AT NOT LESS THAN 16 MILS DRY THICKNESS FILM.
 - 17.1.1. CARRY COATINGS AS CLOSE TO THREADS AS PRACTICABLE; COAT THREADS WITH PETROLEUM-BASE PRESERVATIVE.
 - 17.1.2. AFTER INSTALLATION, CLEAN AND COAT TURNBUCKLE ASSEMBLIES WITH NOT LESS THAN 16 MILS DRY FILM THICKNESS OF COAL-TAR-EPOXY.
- 17.2. AFTER INSTALLATION, PROTECT THREADS ON OUTER ENDS OF RODS AS SPECIFIED FOR ADJACENT SURFACES OR BY APPLYING PETROLEUM-BASE PRESERVATIVE RUBBED THOROUGHLY INTO PLACE SO AS TO FORCE OUT ENTRAINED MOISTURE.
- 17.9. PROTECT BOLTS, NUTS, WASHERS, AND SPACES SIMILARLY.
- 17.9. SUPPORT TIE RODS AS NECESSARY TO PREVENT SAGGING SUFFICIENT TO DAMAGE COATINGS.
- 17.10. AFTER COMPLETION OF THE STRUCTURE, ALL LAP WELDED ANCHOR RODS, BOLT HEADS, THREADS, NUTS, WASHERS AND EXPOSED PORTIONS OF THE BOLTS SHALL BE GIVEN A THOROUGH COATING OF COAL TAR EPOXY (RUST-OLEUM C9578 SYSTEM OR APPROVED EQUAL).
- 17.11. FIELD PAINT ALL DAMAGED COATED AREAS OF PILING, FENDER FRAME, ETC. AFTER ERECTION.

18. TREATMENT OF CUTS.

- 18.1. WHEN IT IS NECESSARY TO BORE HOLES OR TO CUT PRESSURE TREATED MATERIAL AFTER TREATMENT, OR WHEN ANY TREATED SURFACE IS BADLY SCARRED, THE HOLE, CUT OR SCARRED SURFACE SHALL BE GIVEN A MULTI-APPLICATION OF A CONCENTRATED SOLUTION OF THE SAME TYPE PRESERVATIVE AS THAT USED IN THE ORIGINAL TREATMENT AS SPECIFIED IN AWWA STANDARD M4.
- 18.2. THE SUPPLIER OF THE TIMBER PRODUCTS SHALL FURNISH SUITABLE LIQUID PRESERVATIVE FOR FIELD TREATMENT UPON REQUEST FROM THE ENGINEER.
- 18.3. HEATING OF THE PRESERVATIVE AND THE METHOD OF APPLICATION TO THE DAMAGED OR CUT AREAS SHALL BE AS SPECIFIED IN AWWA STANDARD M4.
- 18.4. AFTER THE NECESSARY CUTTING HAS BEEN DONE, THE HEADS OF TREATED TIMBER PILING SHALL BE GIVEN THREE COATS OF HOT CREOSOTE OIL AND ONE COAT OF HOT TAR PITCH. WHEN INDICATED ON THE PLANS, THE PILE HEADS SHALL THEN BE COVERED WITH A SHEET OF ROOFING FELT WEIGHING 55-POUNDS PER 100 SQUARE FEET OR 20 GAGE GALVANIZED METAL. THE COVER SHALL MEASURE AT LEAST 6- INCHES MORE IN EACH DIMENSION THAN THE DIAMETER OF THE PILING AND IT SHALL BE BENT DOWN OVER THE PILING AND THE EDGES FASTENED WITH LARGE HEADED GALVANIZED NAILS.
- 18.5. THE HEADS OF UNTREATED TIMBER PILING SHALL, UNLESS OTHERWISE PROVIDED, BE THOROUGHLY COATED WITH A THICK PROTECTIVE COAT OF RED LEAD AND OIL, HOT TAR, HOT ASPHALTUM OR HOT TAR CREOSOTE AND WHEN INDICATED ON THE PLANS, AND COVERED WITH FELT OR GALVANIZED METAL AS PROVIDED ABOVE.
- 18.6. ALL PLACES WHERE THE SURFACE OF TREATED PILING IS BROKEN BY CUTTING, BORING OR OTHERWISE, SHALL BE THOROUGHLY COATED WITH HOT CREOSOTED OIL AND THEN WITH A COATING OF HOT TAR PITCH. HOT CREOSOTE OIL SHALL BE INJECTED UNDER

19. SITE CLEAN-UP:

- 19.10. FINISH GRADE: AFTER INSTALLATION OF THE NEW BULKHEAD, THE EXISTING SLOPE SHALL BE GRADED AS NEEDED TO DRAIN WATER OVER THE BULKHEAD TO SLOPES INDICATED ON THE PLANS.
- 19.11. ALL PILING TO BE REPLACED AND PILING DEBRIS SHALL BE COMPLETELY REMOVED FROM THE AQUATIC ENVIRONMENT.
- 19.12. REMOVED CREOSOTE TREATED PILES SHALL BE DISPOSED OF IN A MANNER THAT PRECLUDES THEIR FURTHER USE. PILES MUST BE CUT INTO MANAGEABLE LENGTHS (4 FT LENGTHS ARE PREFERABLE) FOR TRANSPORT AND DISPOSAL IN AN APPROVED UPLAND LOCATION. IN ALL CASES, APPLICANTS MUST BE PREPARED TO PROVIDE DOCUMENTATION OF DISPOSAL WITH THE STATEMENT OF COMPLIANCE.

20. STEEL CONNECTIONS

- 20.1. UNLESS SPECIFICALLY NOTED ON THE DRAWINGS, ALL STEEL DETAILS AND CONNECTIONS SHALL CONFORM TO THE STANDARDS OF A.I.S.C. AND SHALL DEVELOP ONE-HALF THE SHEAR CAPACITY OF THE MEMBER.
- 20.2. CONNECTIONS SHALL USE A MINIMUM OF 3/4" DIA A325 BOLTS (OR WELDED EQUIVALENT) UNLESS OTHERWISE NOTED. EACH CONNECTION SHALL HAVE A MINIMUM OF TWO (2) BOLTS.
- 20.3. BOLTS MAY BE INSTALLED SNUG TIGHT AS DEFINED BY AISC, WITH THE FOLLOWING EXCEPTIONS WHICH MUST BE TENSIONED TO THE VALUES IN TABLE 4 OF "RCSC SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS".

20.4. WELDS:

- 20.4.1. MINIMUM WELDS: AISC SPECIFICATION, NOT LESS THAN 1/4" FILLET, CONTINUOUS UNLESS OTHERWISE NOTED.
- 20.4.2. ALL GROOVE WELDS TO BE FULL PENETRATION UNLESS NOTED.
- 20.4.3. WELDERS SHALL HAVE CURRENT EVIDENCE OF PASSING THE APPROPRIATE A.W.S. QUALIFICATION TESTS.

20.5. FIELD MODIFICATIONS:

- 20.5.1. NO BEAM, COLUMN, BRACE, CONNECTION, BASE PLATE OR ANCHOR BOLT MAY BE FIELD MODIFIED WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.
- 20.5.2. DESIGNED, FABRICATED, AND ERECTED IN ACCORDANCE WITH AMERICAN INSTITUTE OF STEEL CONSTRUCTION, MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN, LATEST EDITION.
- 20.5.3. SPLICING OF STRUCTURAL STEEL WHERE NOT DETAILED IS PROHIBITED WITHOUT PRIOR APPROVAL OF STRUCTURAL ENGINEER.

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739


DATE: 07/14/2021

SHEET:

CONSTRUCTION NOTES

PROJECT:

PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX



ENGINEERING, L.L.C.

CIVIL | MARINE | PLANNING | STRUCTURAL

921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539

TX FIRM NO. F-2115

DATE:

07/14/2021

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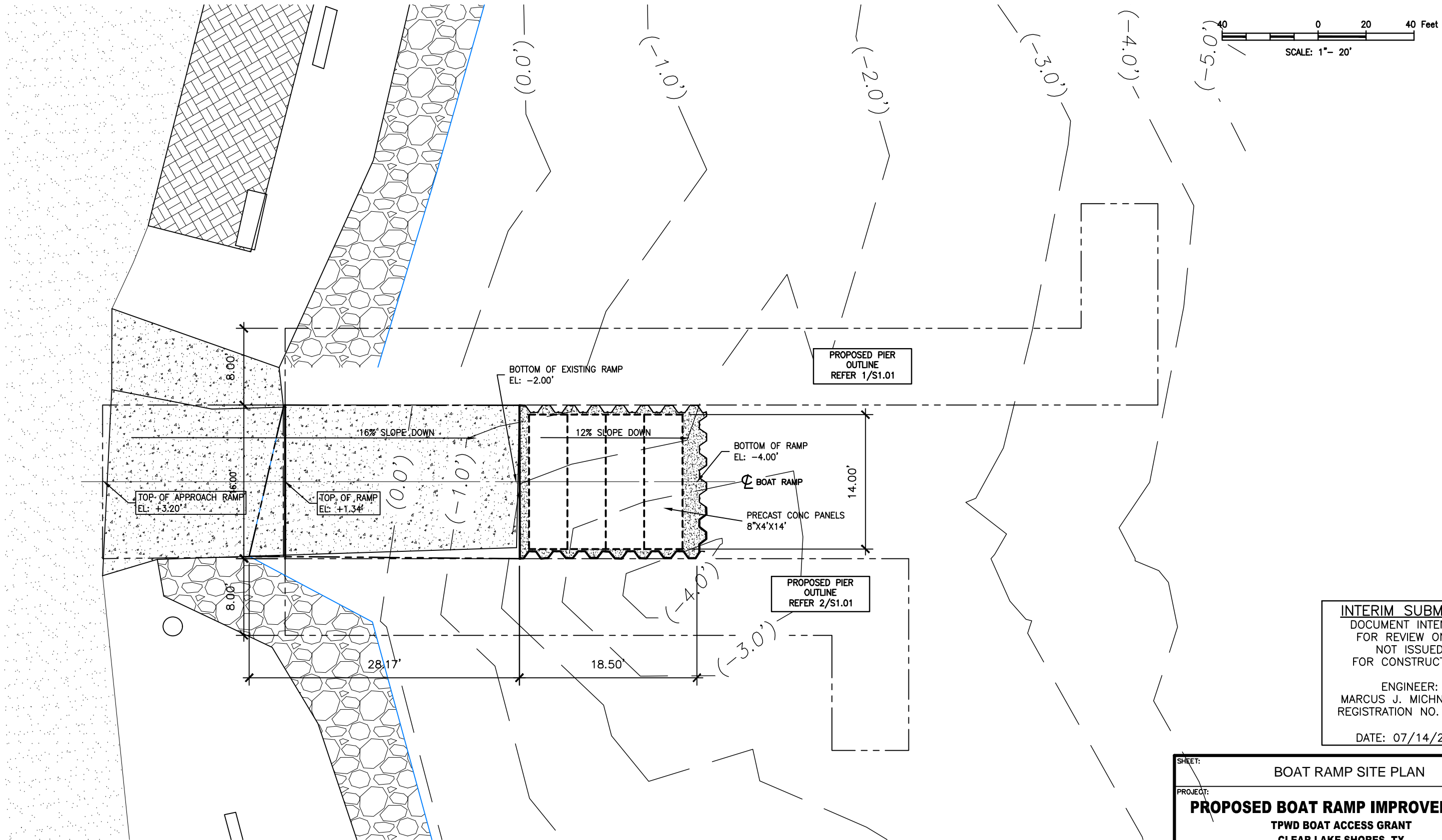
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DWG SIZE: 17"X11"

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SITE PLAN
SCALE: 1" = 30'

DWG SIZE: 17"x11"

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

BOAT RAMP SITE PLAN

PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX



DATE: 07/14/2021

SCALE: 1" = 20'

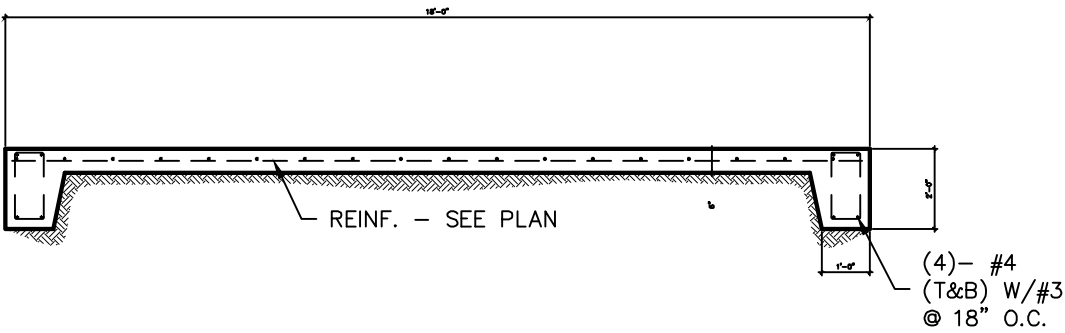
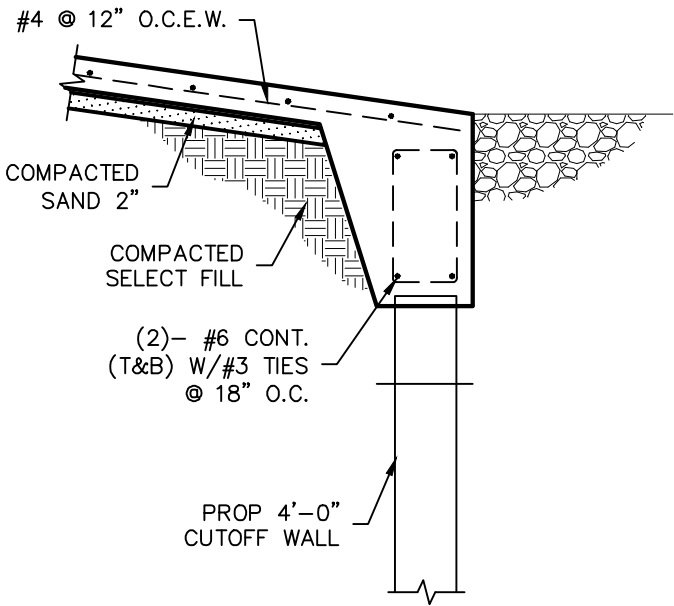
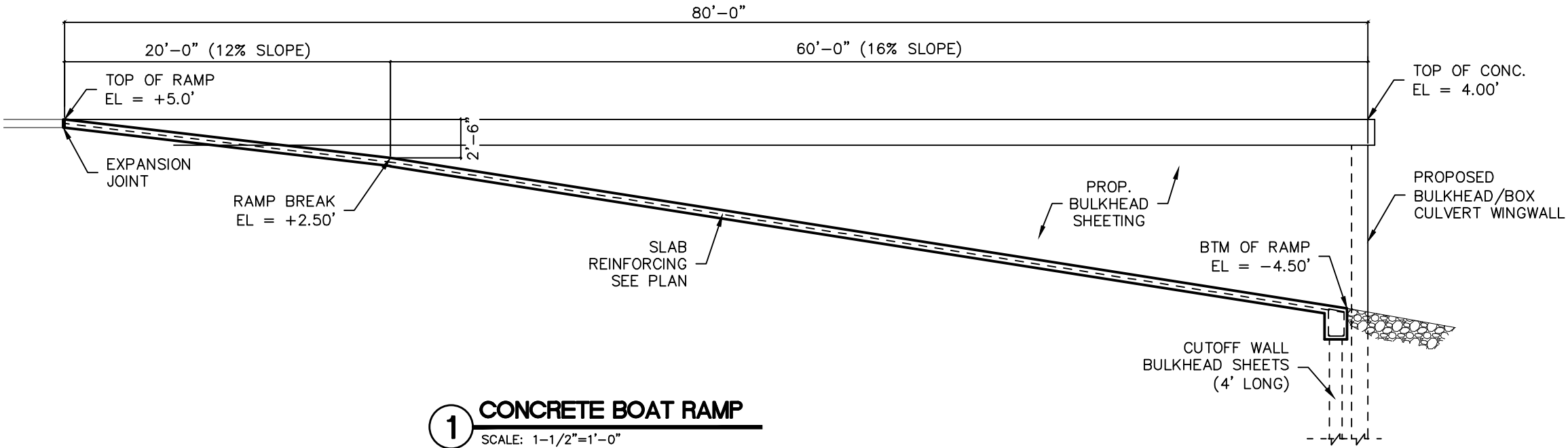
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BOAT RAMP NOTES:

1. ALL MIXING, TRANSPORTATION, PLACING, AND CURING OF CONCRETE SHALL COMPLY WITH ACI 318-89.
2. REINFORCED CONCRETE PAVING SHALL CONSIST OF 5-INCH THICK CONCRETE SLAB WITH NO. 4 REBAR @ 12" C.C. EACH WAY.
 - A. REINFORCED CONCRETE PAVING FOR GRAND CAY BOULEVARD SHALL CONSIST OF 7-INCH THICK CONCRETE SLAB WITH NO. 4 REBAR @ 12" C.C. EACH WAY.
3. SUBGRADE TREATMENT:
 - A. FOR SUBGRADE SOIL CONDITIONS WITH A CLAY CONTENT OF 10.0% OR HIGHER AND PLASTICITY INDEX (PI) OF 10 OR MORE, THE SUBGRADE SHALL BE STABILIZED WITH LIME. SUBGRADE SHALL BE STABILIZED WITH A MINIMUM 6% LIME BY WEIGHT, AT REQUIRED THICKNESS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY. ALTERNATIVE SUBGRADE STABILIZATION MAY BE SUBSTITUTED WHEN SPECIFIC RECOMMENDATIONS ARE MADE BY THE GEOTECHNICAL ENGINEER FOR THE PROJECT AND WHEN SPECIFICALLY APPROVED BY THE CITY.
 - B. FOR SUBGRADE SOIL CONDITIONS CONTAINING A CLEAN SAND WITH NO CLAY CONTENT, THE SUBGRADE SHALL BE STABILIZED WITH CEMENT.
4. MINIMUM REINFORCEMENT LAP LENGTHS = 22 INCHES FOR (#3 REBAR).
5. CONCRETE SHALL HAVE 28-DAY STRENGTH OF 3,000 PSI MINIMUM WITH A 4-INCH TO 5-INCH SLUMP.
6. REINFORCEMENT: ASTM A615 GRADE 60 KSI MINIMUM.
7. EXPANSION JOINTS (EJ) SHALL BE PROVIDED EVERY 60' MAXIMUM AND AT LOCATIONS INDICATED ON THE PAVING PLAN.
8. CONTROL JOINTS (CJ) SHALL BE PROVIDED AT 20' MAXIMUM SPACING ON CENTER EACH WAY.
9. SELECT FILL: THE FILL SHALL CONSIST OF OFF-SITE INORGANIC SILTY CLAYS OR SANDY CLAYS WITH LIQUID LIMIT LESS THAN 40 AND A PLASTICITY INDEX (PI) BETWEEN 10 AND 20.



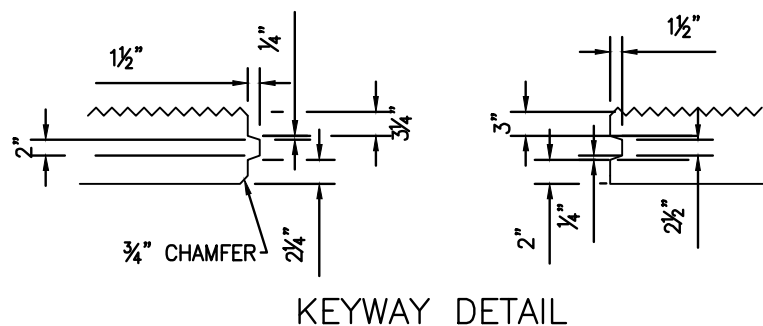
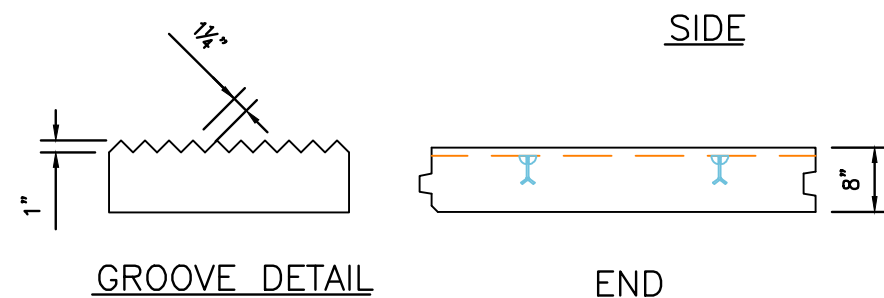
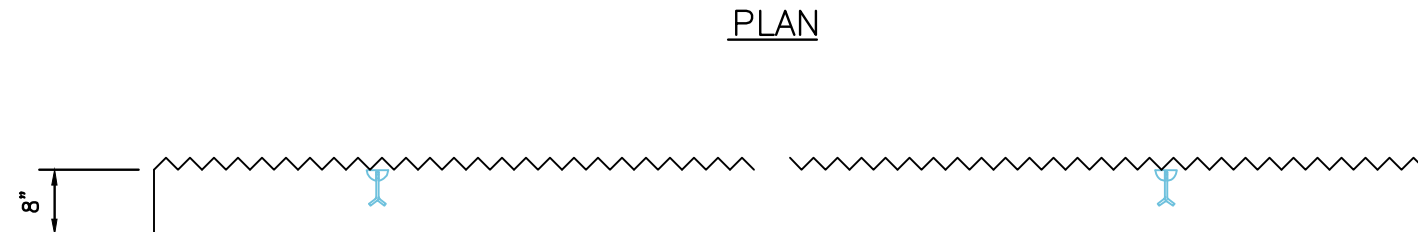
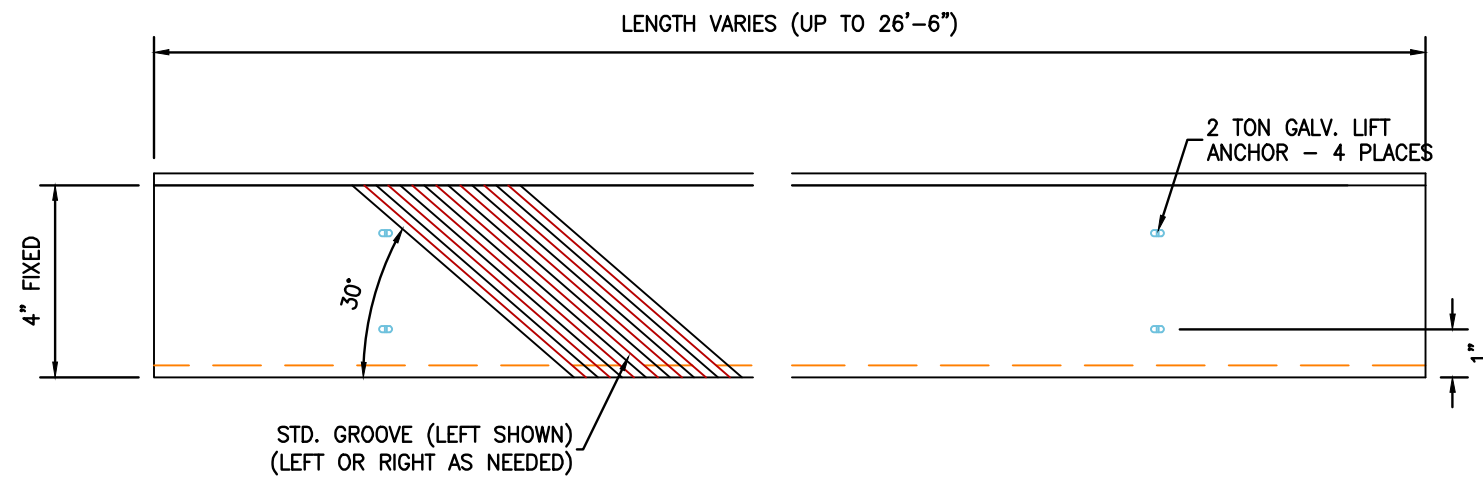
INTERIM SUBMITTAL
DOCUMENT INTENDED
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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

SHEET: BOAT RAMP DETAILS & NOTES	
PROJECT: PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115	DATE: 07/14/2021
	SCALE: AS NOTED
	SHEET NO: S2.01
	JOB NO: 20-244
REV: A	

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1 **BOAT RAMP PLANK**

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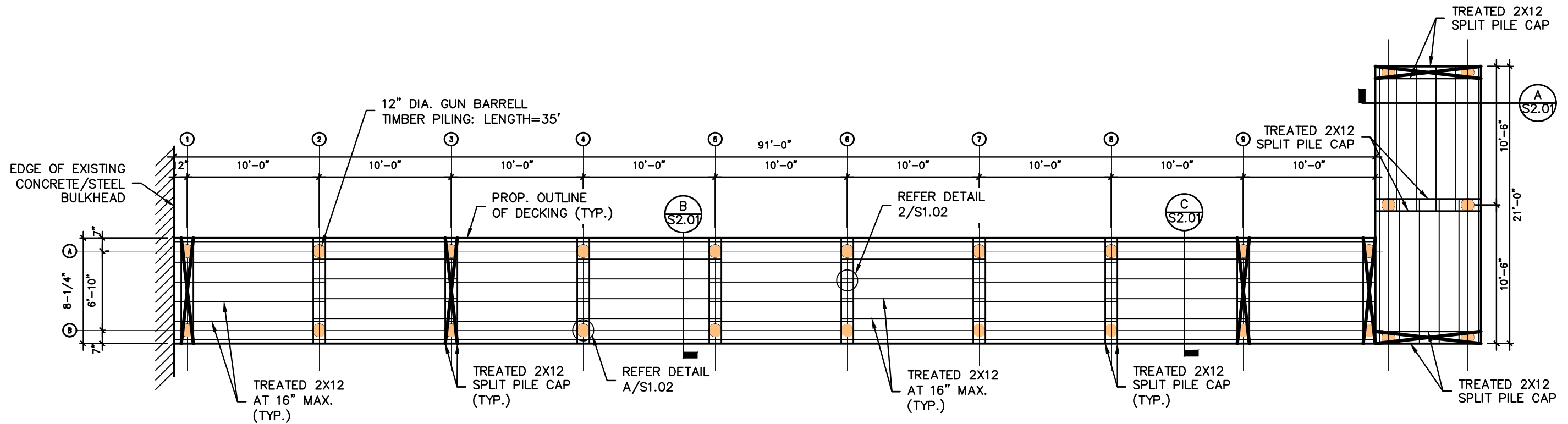
ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

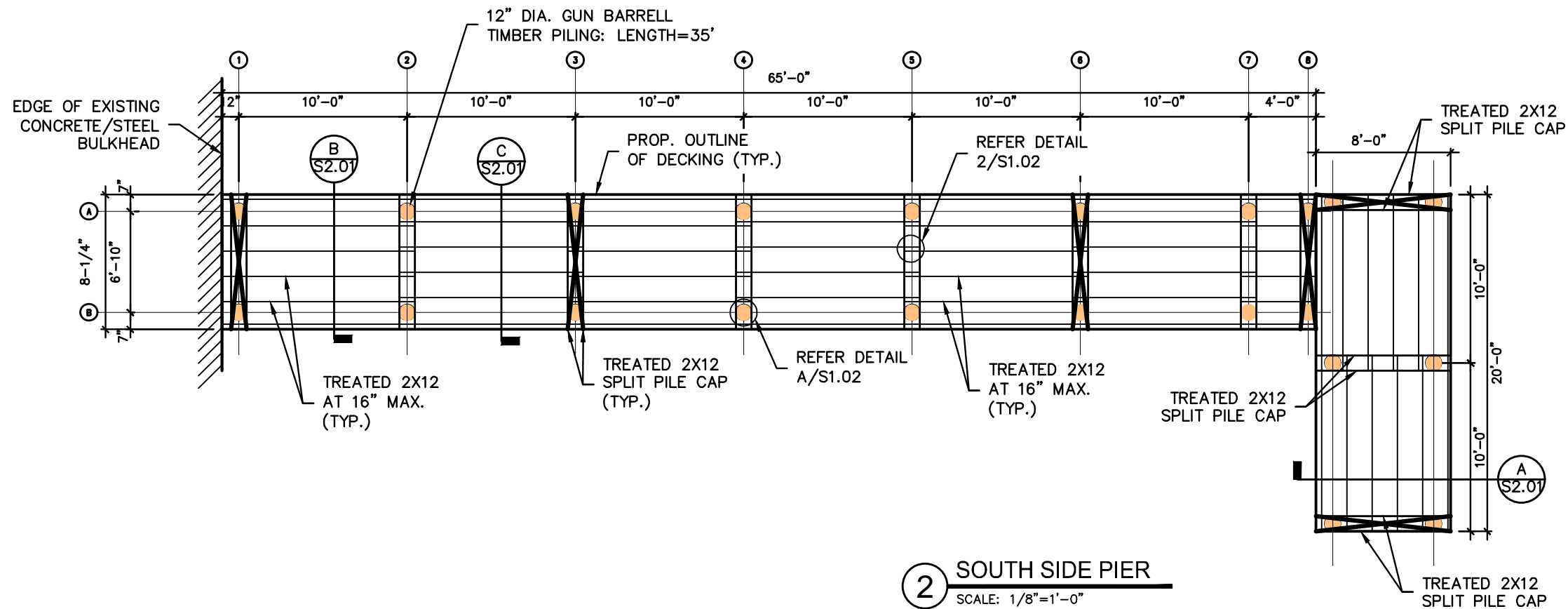
SHEET:		BOAT RAMP DETAILS	
PROJECT:		PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 SHELMARK ENGINEERING, L.L.C. CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115		DATE:	07/14/2021
		SCALE:	3"=1'-0"
		SHEET NO:	S2.02
		JOB NO:	20-244
		REV:	A

DWG SIZE: 17"x11"

INFORMATION AND DATA CONTAINED IN THIS DRAWING ARE STRICTLY CONFIDENTIAL AND ARE SUPPLIED ON THE UNDERSTANDING THAT THEY WILL BE HELD CONFIDENTIALLY AND NOT REPRODUCED, COPIED OR DISCLOSED TO THIRD PARTIES WITHOUT THE PRIOR WRITTEN CONSENT OF SHELMARK ENGINEERING, LLC



1 NORTH SIDE PIER
SCALE: 1/8"=1'-0"




2 SOUTH SIDE PIER
SCALE: 1/8"=1'-0"

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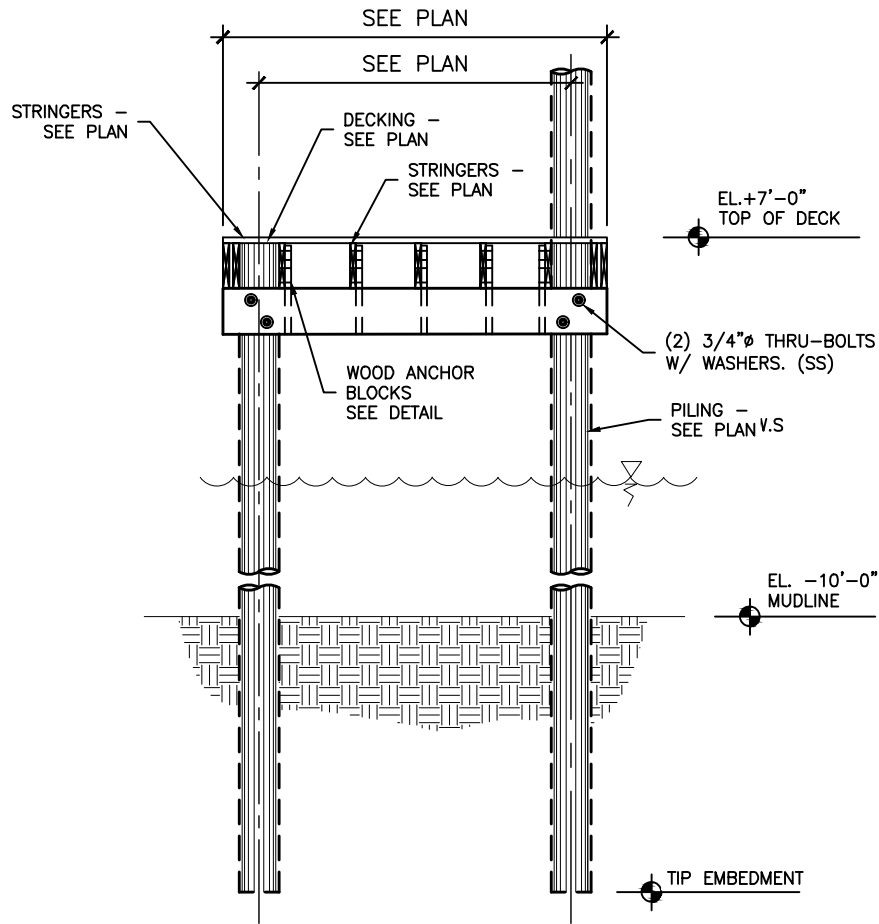
ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

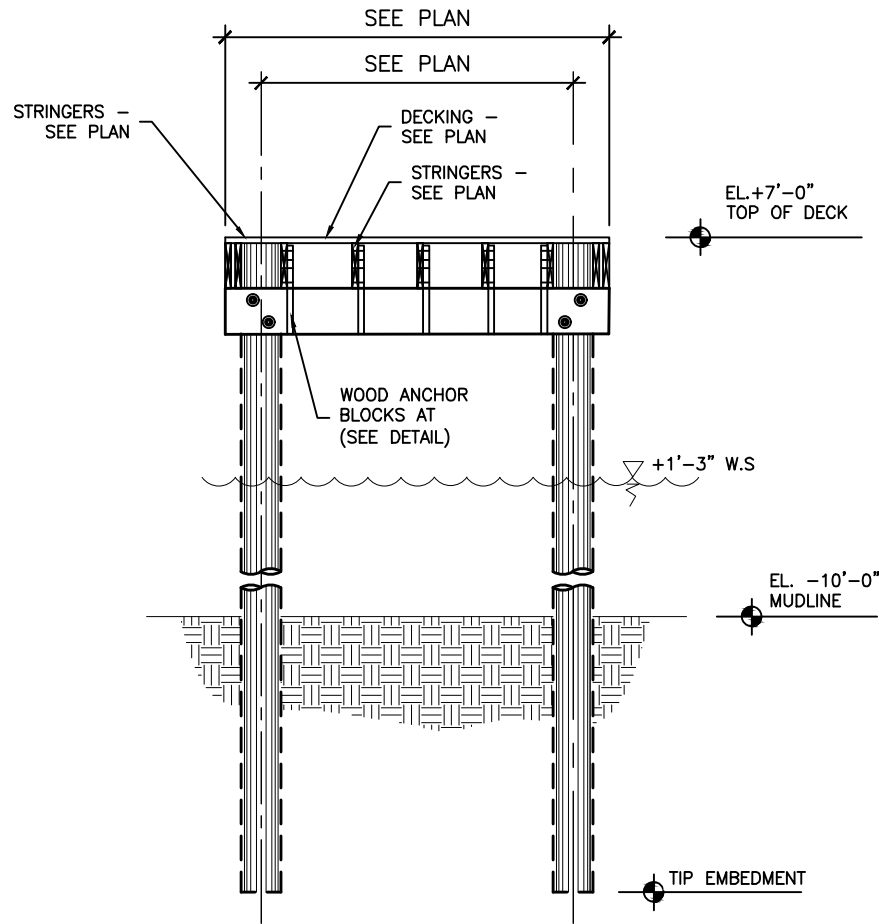
SHEET: FIXED PIER LAYOUT	
PROJECT: PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 SHELMARK ENGINEERING, L.L.C. CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115	DATE: 07/14/2021
	SCALE: 1/8" = 1'-0"
	SHEET NO: S3.01
	JOB NO: 20-244

DWG SIZE: 17"X11"

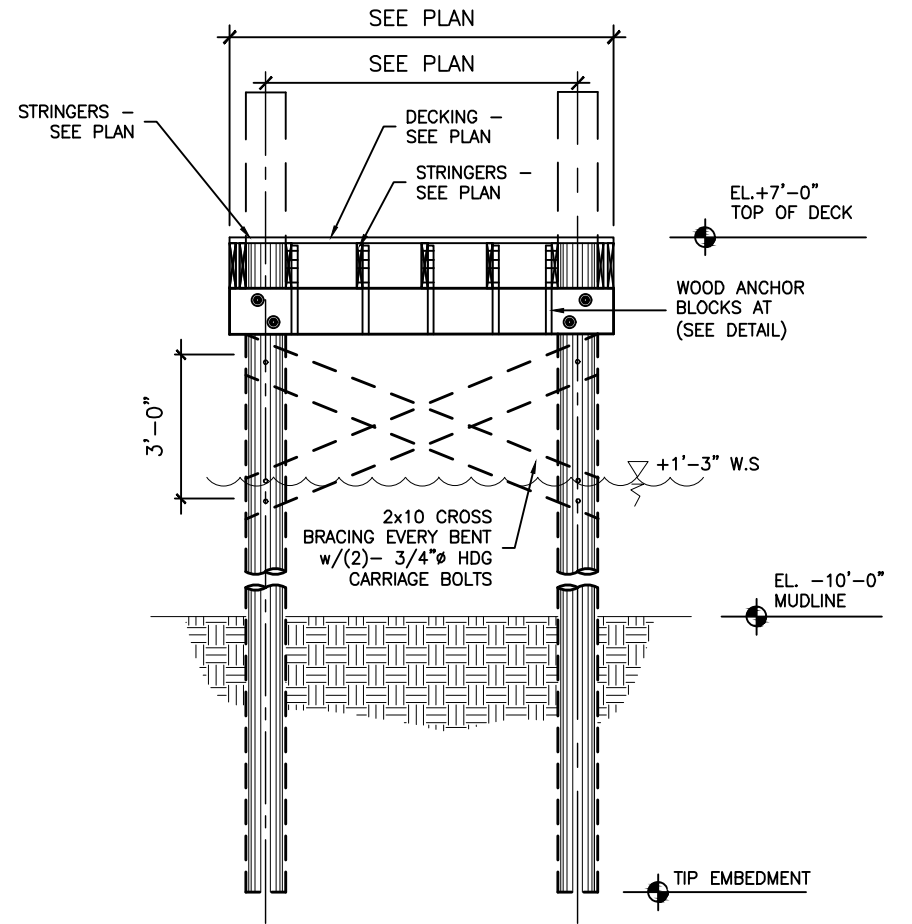
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A SECTION - PIER
SCALE: 1/4"=1'-0"



B SECTION - PIER
SCALE: 1/4"=1'-0"



C SECTION - PIER
SCALE: 1/4"=1'-0"

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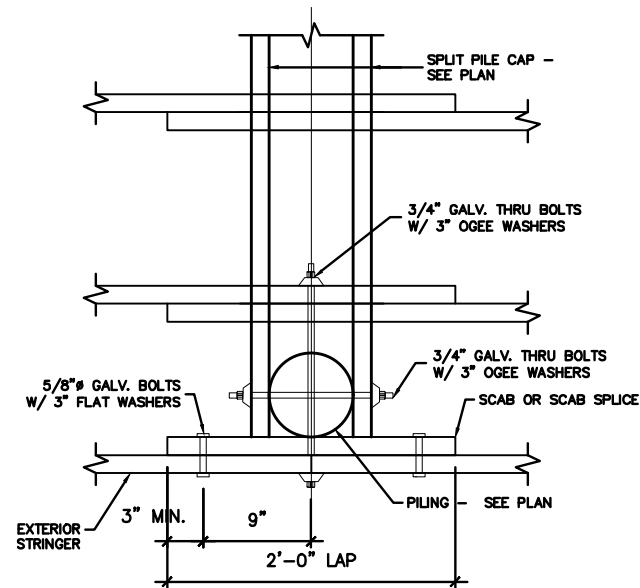
ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

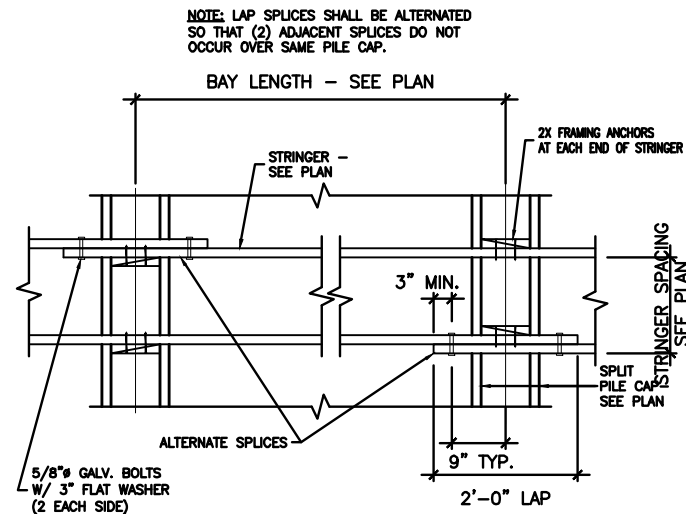
SHEET: DOCK FRAMING DETAILS	
PROJECT: PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 SHELMARK ENGINEERING, L.L.C. CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115	DATE: 07/14/2021
	SCALE: 1/4" = 1'-0"
	SHEET NO: S3.02
	JOB NO: 20-244
REV: A	

DWG SIZE: 17"X11"

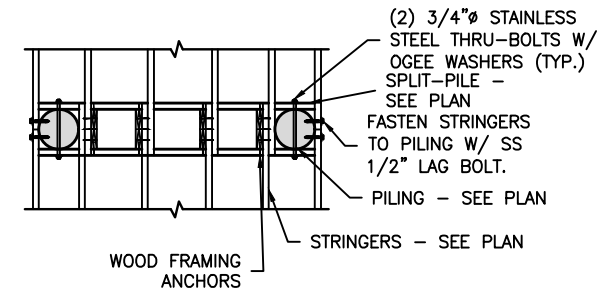
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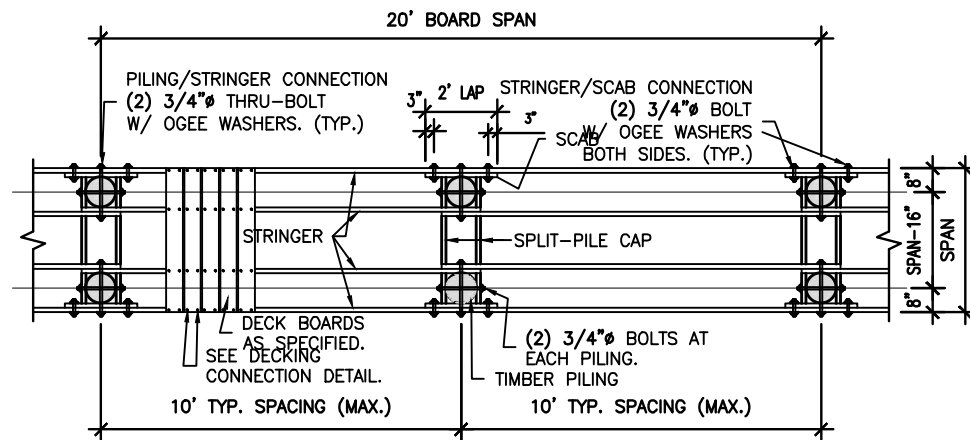
1 PILING CONNECTION
SCALE: NTS



2 ALTERNATING LAP SPICE
SCALE: NTS



3 PIER BLOCKING
SCALE: NTS




4 PIER SECTION
SCALE: NTS

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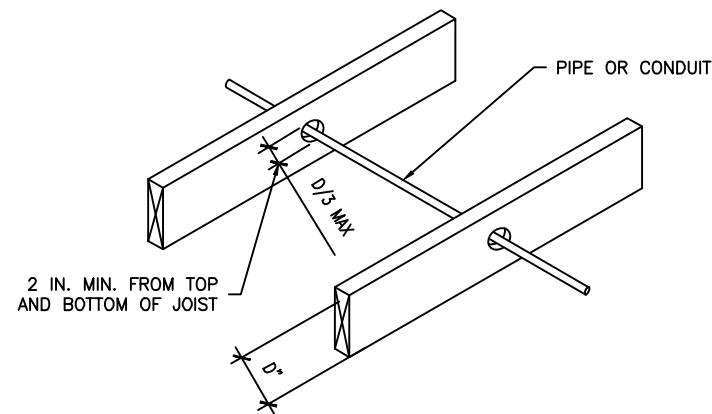
ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

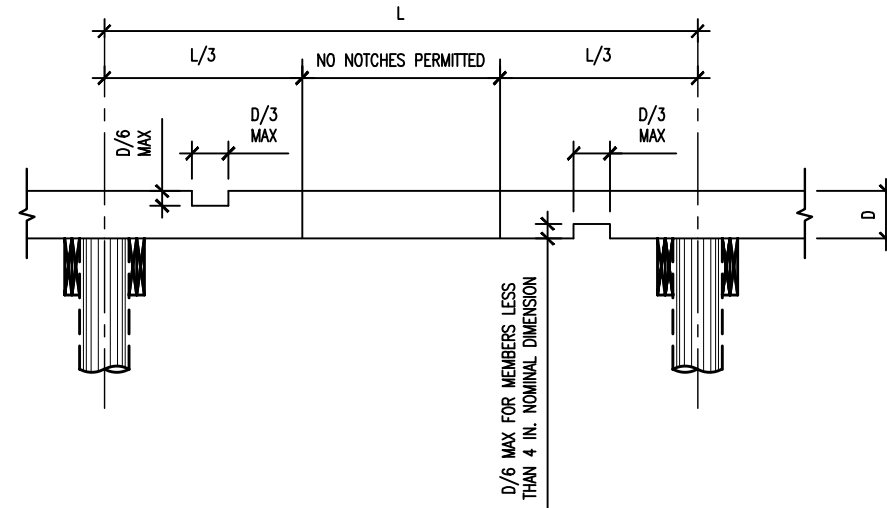
SHEET:		FIXED PIER DETAILS	
PROJECT:		PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 SHELMARK ENGINEERING, L.L.C. CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115		DATE:	07/14/2021
		SCALE:	AS NOTED
		SHEET NO:	S3.03
		JOB NO:	20-244
		REV:	A

DWG SIZE: 17"x11"

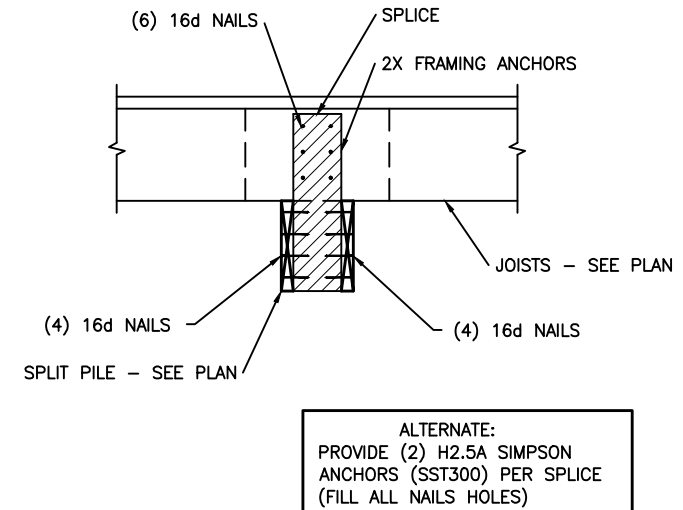
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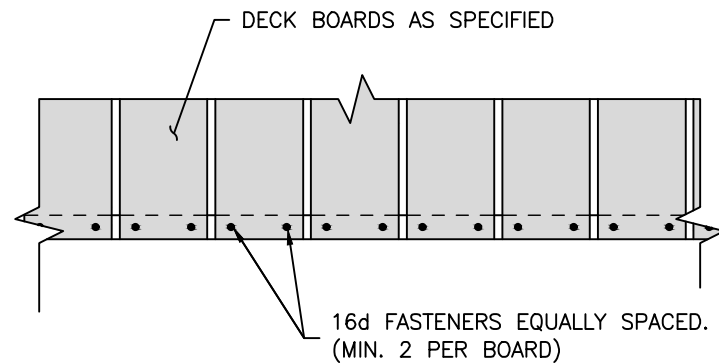
1 **DETAIL - DRILLING**
SCALE: 1/4"=1'-0"



2 **DETAIL - CUTTING AND DRILLING**
SCALE: 1/4"=1'-0"



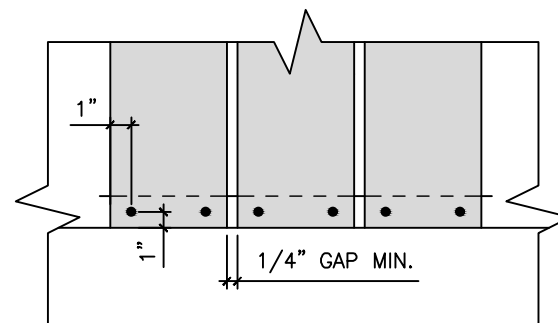
3 **WOOD ANCHOR BLOCKS**
SCALE: 1/4"=1'-0"



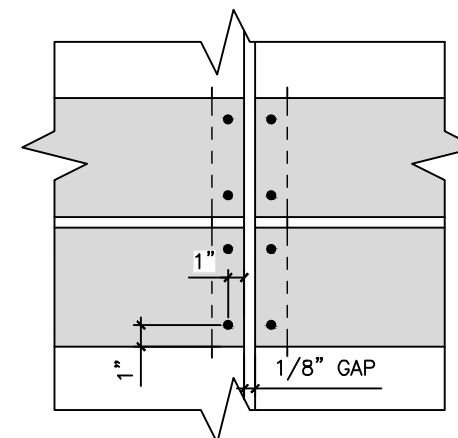
DECKING SPACING CHART

WIDTH AT INSTALLATION	DECKING GAP
5-1/2"	1/8"-1/4"
5-5/8"	1/16"-1/8"
5-3/4"	BUTT PIECES TOGETHER
>5-3/4"	ALLOW TO DRY BEFORE FURTHER INSTALLATION

4 **TIMBER DECK CONNECTION**
SCALE: 1/4"=1'-0"



WIDTH TO WIDTH



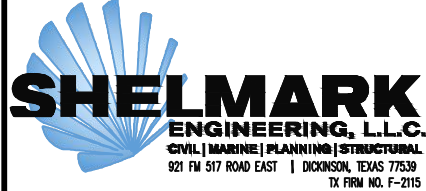
END TO END

5 **TREX DECK CONNECTION**
SCALE: 1/4"=1'-0"

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 07/14/2021

SHEET: MISC FRAMING DETAILS	
PROJECT: PROPOSED BOAT RAMP IMPROVEMENTS TPWD BOAT ACCESS GRANT CLEAR LAKE SHORES, TX	
 CIVIL MARINE PLANNING STRUCTURAL 921 FM 517 ROAD EAST DICKINSON, TEXAS 77539 TX FIRM NO. F-2115	DATE: 07/14/2021
	SCALE: 1/4" = 1'-0"
	SHEET NO: S3.04
	JOB NO: 20-244 REV: A

DWG SIZE: 17"X11"